LIBRARY OF

BOSTON SOCIETY OF CIVIL ENGINEERS

No. 9022

GIFT OF

JAN 24 1916

PURCHASED

RULES

Books and periodicals may be used in the Society rooms by members and friends.

Members may borrow books for home use—with the exceptions noted below—but no one shall have more than four books at any time, or keep any book more than two weeks.

Volumes belonging to a set—such as volumes of bound periodicals and of proceedings or transactions of societies—and such other books as the Board of Government may designate, may be taken from the rooms for a limited time only, by special arrangement with the attendant. They shall be subject to recall at any time.

There shall be no immediate renewal of any book on its return to the library.

A member borrowing a book shall at that time give a receipt therefor.

A fine of one cent per day per volume shall be charged for over-time, and must be paid before the delinquent can take any more books.

Hand books, indexes, current numbers or unbound files of periodicals, books belonging to the Clemens Herschel Special Library, and new books not yet placed on the regular shelves must not be taken from the rooms.

Books of unusual value are marked with a star (*), and must not be taken from the rooms, except by written permission from the Librarian, to be filed by the attendant.

Any person mutilating or losing a book shall pay for the damage, or replace the book.

Any one who violates the above rules may, upon written request from the Librarian to the Board of Government, be debarred from the privileges of the library for such time, not less than three months, as the Board of Government may determine.

(Revised June 16, 1915.)

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BOSTON SOCIETY OF CIVIL ENGINEERS.
ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. JANUARY, 1910. No. 38

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, January 26, 1910, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. William L. Church will read a paper entitled "Hydraulic Power Development with special reference to Ambursen Dam Construction." The paper will be illustrated by lantern slides.

BUSINESS OF THE MEETING: To choose a Committee of Five to nominate officers for the ensuing year.

S. E. TINKHAM, *Secretary.*

EXCURSION, JANUARY 26, 1910.

The officials of the Boston Elevated Railway Company and Harry P. Nawn, President of the Hugh Nawn Contracting Company, invite the members of the Boston Society of Civil Engineers to visit the work now under construction on the CAMBRIDGE MAIN STREET SUBWAY, Jan. 26, 1910.

The party will assemble at Harvard Square at 1.30 P. M., where about one-half hour will be spent examining the work at this point. The members will then walk along Massachusetts Avenue inspecting the construction, arriving at the Bay Street shaft of the Dana Hill tunnel at about 2.15 P. M., where the shield will probably be moved. Leaving Dana Hill tunnel at about 3.15, the party will inspect the various pieces of construction along Main Street and the Boston and Albany yard, arriving at the finished portion of the subway at Kendall Square at about 4.30 P. M.

For a description of the work members are referred to the NEWS ITEMS in this and previous issues of the *Monthly Bulletin.*

Members who intend joining in this excursion are requested to reply promptly on the inclosed post card.

EXCURSION COMMITTEE.

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COMING REGULAR MEETINGS.

The following preliminary announcement is made of papers to be read at early regular meetings of the Society : —

February 16, 1910.— "Talk on the Panama Canal," illustrated by lantern slides, by H. K. Higgins.

March 16, 1910.— Annual meeting at Boston City Club. Program will be given in February *Bulletin*.

INFORMAL MEETINGS.

The practice, which has proved acceptable in former years, of holding informal meetings in the Society's Library on Wednesday evenings not assigned to the regular meetings of the Society and the Sanitary Section will be continued this winter.

Members are requested to notify the Secretary of subjects which they think will be of interest to have presented.

Meetings will be held at 7.45 in the Society's Library, 715 Tremont Temple.

On February 9, 1910, Mr. Lester W. Tucker will give a talk entitled "Construction of the Gallatin Valley Railway in Montana."

The opaque lantern will be used.

SOCIETY OF ARTS MEETINGS.

Through the courtesy of the Secretary of the Society of Arts announcement is made of the next meetings of that Society :—

January 26, 1910. Prof. Charles R. Cross, in charge of the Department of Physics at the Institute of Technology, on "The Experimental Evidence for Modern Views as to the Nature of Electricity."

The meeting will be held in Room 22, Walker Building, corner Boylston and Clarendon Streets, at 8 o'clock.

February 9, 1910. Dr. Harvey W. Wiley of Washington, D. C., on "The Pure Food Law."

MINUTES OF MEETINGS.

DECEMBER MEETING OF THE SOCIETY.

Boston, Dec. 15, 1909. — A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.50 o'clock, P.M., Pres. George B. Francis in the chair; One hundred five members and visitors present.

As the record of the last meeting had been printed in the *Bulletin*, its reading was dispensed with and it was approved as printed.

Messrs. Howard K. Alden, Walter H. Allen, Elmer C. Houdlette, Charles R. Main and Charles R. Marsh were elected members of the Society, and Mr. Edward E. Savory an associate.

The President announced the deaths of two members of the Society, Earle H. Gowing, who died Nov. 24, 1909, and Laurence Bradford, who died Dec. 6, 1909.

The President has appointed the following committees to prepare memoirs: On memoir of Mr. Gowing, Messrs. R. A. Hale and L. M. Bancroft, and on memoir of Mr. Bradford, Mr. Henry Manley.

The Secretary presented the report of the committee appointed to prepare memoir of William Parker, and on motion it was voted to accept the report and print it in the *Journal of the Association of Engineering Societies.*

On motion of Mr. Chase, the thanks of the Society were voted to the Coffin Valve Company for courtesies extended this afternoon on the occasion of the visit of members to the works of that Company.

Mr. James W. Thomas of New York was then introduced and read the first paper of the evening, entitled, "An Account of the Tyng's Island Suspension Bridge, near Lowell, Mass." The paper was discussed by Mr. A. T. Safford of the Society, and Mr. Robert A. Marshall of the office of Westinghouse, Church, Kerr & Co.

The second paper was read by Mr. J. R. Worcester, and was entitled "The Bellows Falls Arch Bridge."

The third paper was by Mr. R. R. Evans, describing the old Chain Bridge at Newburyport and the new bridge now being erected on the site of the old bridge. Prof. George F. Swain also contributed some additional information in relation to the new bridge.

The meeting closed with a brief recital of some interesting notes regarding the history of American bridges, by the President.

All the papers were illustrated by lantern slides.

Adjourned.

S. E. Tinkham, *Secretary.*

MEMBERSHIP CARDS.

The membership cards for 1910 are now ready for distribution and one will be mailed to any member who applies to the Secretary.

APPLICATIONS FOR MEMBERSHIP.

The following applications for membership have been received and are now before the Board of Government for approval. Members having information which will assist the government in its consideration of these applications are requested to communicate at once with any member of the Board. Communications will be regarded as confidential and for the use of the Board alone.

As Members.

William Alfred Cobb, Auburn, Me. (b. 1885). Graduated from the University of Maine in June, 1908, and received degree of B. S. in civil engineering. During the season of 1905 was employed by the Water Works Department of Auburn, Me.; during the summers of 1906 and 1907 acted as rod and level man in the employ of the United States Geological Survey; at present is in charge of Cement Testing Laboratory of the Androscoggin Reservoir Co., Lewiston, Me. Recommended by H. S. Boardman, Walter H. Sawyer, H. K. Barrows, H. P. Hamlin.

Samuel Prescott Coffin, West Newbury, Mass. (b. 1883). Educated at the Newburyport High School. In 1891 entered the service of the Boston & Maine R. R. as rodman and is now an assistant engineer with that company. Has been engaged on construction work as follows: Separation of grades at Charlestown Prison Point, at Belchertown, at South Deerfield and at Malden; on the Free River Bridge, Portland, Me; on the piers and grain elevator, Mystic Docks; in charge of work at coal handling trestle and coal yard at North Wharf, Mystic Docks; assistant engineer at Pier 46, Mystic Docks; on separation of grades at Holden, Mass.; on improvements at Alton Bay, N. H.; on addition to North Station, heating plant at Charlestown; drawbridge at Miller's River, Broadway Bridge at Chelsea, repairs to coal wharf at Portland, repairs to P. & R. Pier at Salem, and at present on work at Pier 46, Mystic Docks. Recommended by J. P. Snow, F. B. Rowell, L. C. Lawton and W. H. Ellis, Jr.

William J. Fielding, Somerville, Mass. (b. 1880). Graduate of High School. Employed as rodman three years on Metropolitan sewers in Boston; one year by the Town of Brookline; two years as transitman on surveys and construction of high tension line for Massachusetts Electric Co.; one year as leveler and general foreman on Panama Canal; six months on railroad location in Costa Rica and Republic of Panama, as engineer in charge; eight months on railroad location surveys and grade

crossing studies with G. M. Thompson of Wakefield, Mass.; and since June, 1909, United States Surveyor on Intra Coastal Canal Survey. Recommended by G. W. Blodgett, W. M. Brown, W. T. Wiley and F. P. Morrill.

Clarence Brown Humphrey, Swampscott, Mass. (b. 1873). Educated in public schools of Marblehead, Mass., and Laconia, N. H. Entered the employ of Aspinwall & Lincoln, civil engineers, Boston, in May, 1891, during development of Aspinwall Hill, Corey Hill and West End properties in Brookline, and with them on various engineering and surveying work until September, 1909, when he accepted position of assistant surveyor in Land Registration Office, Boston. Is now surveyor for Court, Land Registration Office, Boston. Recommended by E. H. Lincoln, Thomas Aspinwall, F. M. Miner and F. O. Whitney.

Leroy Deering Peavey, Malden, Mass. (b. 1876). Graduated from Phillip's Exeter Academy, 1894, and from Massachusetts Institute of Technology, 1898. Structural engineer with New England Structural Co. for about two years; also practiced in New York City; engineer for American Bridge Co., 1901, 1902; for Boston Bridge Works and Purdy & Henderson, 1902, 1903; chief engineer for H. P. Converse & Co. (Structural Steel and General Building Construction and Reinforced Concrete) from 1903 to present time. Recommended by J. R. Worcester, E. E. Pettee, G. H. Brazer and G. C. Currier.

As an Associate.

Theodore Ludwig Keppler, Brookline, Mass. (b. 1847). Followed the sea from 1863 to 1870, passed examination as captain, 1867, had charge of coasting schooner on Congo River, South Africa, in 1868. Entered employ of Standard Sugar Refinery, 1870; studied at home engineering and chemistry and advanced through different positions to assistant superintendent of Standard Sugar Refinery, continued in the same position with the American Sugar Refining Company when the latter took over the management of the "Standard"; became superintendent in 1897, and occupies this position at the present time. Recommended by F. I. Winslow, William Jackson, F. A. McInnes and S. E. Tinkham.

LIBRARY NOTES.

Book Reviews.

Cyrus Hall McCormick, His Life and Work. By Herbert N. Casson. 26 illustrations. 12 mo. pp. 264. Price $1.50 net. A. C. McClurg & Co., Publishers, Chicago.

A book on any topic by Mr. Casson is always interesting, as his style is lively and he has a forcible manner of stating otherwise dry facts, whether his topic be religion, socialism or science. And this book is no exception to the rule.

This volume contains the story of the life of a forceful, masterful and strenuous, as well as inventive character, whose work, as the author makes plain, has revolutionized the method of reaping, and has thus pushed ahead to remote ages the starvation line of the world.

Some idea of the trials of an inventor are learned from the fact that it required seventeen years of legal fighting to find out that the reaper was not entitled to a reissue of the patent, confirming the original ruling of the Commissioner of Patents when he stated that the reaper was of too great value to the public to be controlled by any individual.

The bulldog tenacity of the man is again shown in his legal fight against a railroad corporation in order to recover the value of nine burned trunks, which suit he won after a twenty-three years' fight.

It is to be regretted — at least from the standpoint of the mechanical engineer — that this volume does not contain more details of the precise mechanical improvements made by Mr McCormick.

F. I. Winslow.

Azimuth. By Prof. George L. Hosmer. First Edition, 1909. pp. 73. $1.00. John Wiley & Sons, New York.

[Gift of author.]

The little book "Azimuth" fills a place which has never before been held by any surveying publication. It gives the surveyor in very compact form a book of reference covering all of his practical needs along this line. It is frequently desirable to check the azimuth of the lines of long traverses. Most surveyors are not familiar with any method of determining a true meridian except that by observation on Polaris at culmination or at elongation. It frequently happens that the azimuth check is needed just at the time when Polaris is not in a convenient location with respect to the pole, and some other method of determining the meridian is necessary.

Professor Hosmer's book gives several other serviceable methods for determining the meridian at any time by observation on a circumpolar star; the meridian by time interval after two constellations have crossed the plumb-line; and the meridian by solar observations.

The book contains little theory, but has a complete set of tables required for the observations. It is intended apparently as a reference to be taken into the field, and as such it should be very useful.

HAROLD K. BARROWS.

RECENT ADDITIONS TO THE LIBRARY.

United States Government Reports.

Geological Survey, Water Supply Bulletins, Nos. 191, 196, 200, 213, 218, 219, 227, 230, 231, 232, 233, 234, 242.

Commissioner of Education, Annual Report for 1909. Part I.

Chief of Bureau of Steam Engineering, Annual Report for 1909.

Department of Agriculture, Annual Report of Chief of Weather Bureau for 1907–08.

State Reports.

Connecticut R. R. Commissioners' Report, Annual Report for 1908.

City and Town Reports.

Boston, Mass., Annual Report of Transit Commission, 1909.

Boston, Mass., Annual Report of Street Department, 1909.

New York Harbor, Sanitary Condition Previous to 1908.

Philadelphia, Pa., Annual Report of Department of Public Works, 1908.

Providence, R. I., Quarterly Report Department Public Works, Sept. 30, 1909.

Miscellaneous.

International Conference of Cotton Growers, Spinners and Manufacturers, 1907–1909.

Bibliography of Cotton Manufacture, by C. J. H. Woodbury. Gift of Author.

Hawkins' Mechanical Dictionary.

Collection and Disposal of Municipal Waste, by W. F. Morse. Gift of Author.

Cambridge Bridge. Report on Construction.

FREDERIC I. WINSLOW, *Librarian.*

LIST OF MEMBERS.

ADDITIONS.

Walter H. Allen	U. S. Naval Magazine, Hingham, Mass.
Charles H. Dutton	2 Wellington Ave., Waltham, Mass.
William F. Farley	101 Milk St., Room 1001, Boston, Mass.
Philip H. Ladd	229 Main St., Medford, Mass.
Charles R. Main	14 Herrick St., Winchester, Mass.
Charles R. Marsh	Technology Chambers, Boston, Mass.
Bernard S. Rose	14 Woodbridge St., Cambridge, Mass.
Edward E. Savory (Associate)	6 Beacon St., Boston, Mass.

CHANGES OF ADDRESS.

Paul A. Babcock	Plymouth Ave., East Milton, Mass.
Charles B. Breed	6 Beacon St., Boston, Mass.
Nathan S. Brock	Ashland, Mass.
Charles S. Bryer	236 Auburndale Ave., Auburndale, Mass.
William W. Drummond	Fort Sheridan, Ill.
Richard K. Hale	85 Water St., Boston, Mass.
Arthur E. Hatch	247 Atlantic Ave., Boston, Mass.
Arnold W. Heath	35 Federal St., Boston, Mass.
Rolf R. Newman	Room 640, Old South Bldg., Boston, Mass.
Edward B. Richardson	85 Water St., Boston, Mass.
David W. Stradling	429 East Main St., Jefferson City, Mo.
Edwin A. Taylor	360 East 57th St., Portland, Ore.
Ralph Whitman	Bureau of Yards and Docks, Navy Dept., Washington, D. C.
George E. Whitney	788 Mass. Ave., Cambridge, Mass.
E. P. Whitten	City Hall, Manila, P. I.
E. W. Wiggin	Care of Engineer's Office, Central N.E.R.R. Co., Hartford, Conn.
H. P. Wilson	11 Shirley St., Worcester, Mass.

DEATH.

John H. Emigh	Died Jan. 6, 1910

NEW ENGINEERING WORK.

(Under this head the Excursion Committee proposes to present each month a brief résumé of engineering work in progress in New England, as far as such information is readily obtainable. The assistance of members is desired, and items of interest will be gladly received. Such items are intended to include not only works of exceptional magnitude or containing novel features, but also engineering construction work of all kinds and all degrees of magnitude. Notes should be in the hands of the Committee not later than the 1st Wednesday of each month.—FRANK H. CARTER, Secretary, Excursion Committee, 147 Magazine Street, Cambridge, Mass.)

Boston Elevated Railway Company.— CAMBRIDGE MAIN STREET SUBWAY.— At the present time an interesting rapid transit project in process of construction near Boston is the connection of the Tremont Street Subway at Park Street with Cambridge as shown in accompanying plan of Cambridge Main Street Subway and connecting lines. The underground portion of the connection in Boston, consisting of a tunnel under Beacon Hill, is being built by the Boston Transit Commission. At the west end of Beacon Hill tunnel the Boston Elevated Railway Company will erect an elevated structure to the Cambridge bridge where a double-track reservation is provided to carry the cars over the river.

The Cambridge end of this work is being built by a contractor for the Boston Elevated Railway Company under authority of the Legislature in Chapter 520, Acts of 1906, and consists of an incline from the Cambridge bridge to a double-track subway under Main Street to Massachusetts Avenue and under Massachusetts Avenue to Harvard Square where there is an underground station for the transfer of passengers between subway trains and surface cars. Two intermediate stations, one at Kendall Square and one at Central Square in Cambridge, will realize the greatest possible speed in transportation of passengers and yet give perfect facilities for taking care of local traffic and transferring passengers to diverging surface lines.

This structure will be of reinforced concrete throughout, with the addition of some structural steel work at stations. The concrete is a 1–2–4 mixture. The subway in Main Street and in Massachusetts Avenue as far as Central Square will be built in open cut. West of Central Square it will be built in tunnel to Putnam Square and then open cut to the terminal yard.

Main Street.— On Main Street the active work started last August with the construction of the incline and subway at Kendall Square. This was all that could be done until the surface lines were abandoned on Main Street. Early in November

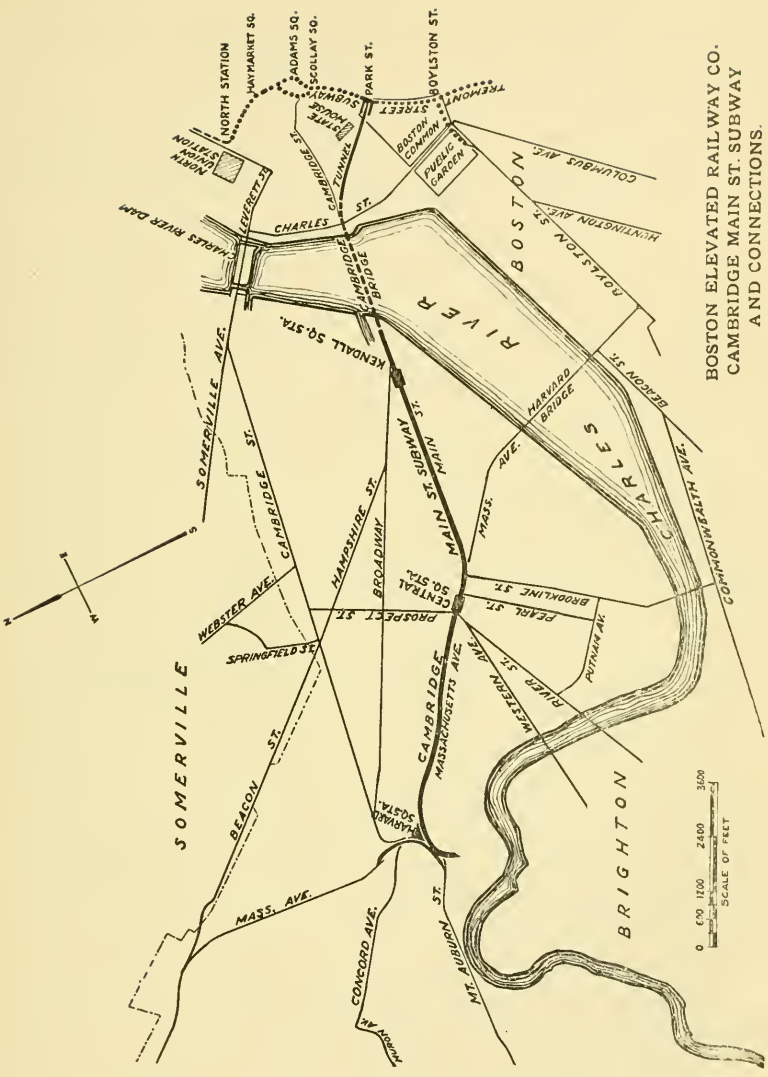
the cars were diverted and the section along the entire length of Main Street was put under construction.

At the present time there are 5 electric derricks in operation and 3 cable-ways. The first opening is at Kendall Square where the station is under construction; the next is at the junction of Harvard and Main Streets. Two derricks are located just east of the Boston & Albany Railroad Crossing and one derrick just west of this crossing. One cable-way extends from Albany Street to Portland Street, a second from Harrison Street to Windsor and a third from Windsor to Austin Street. Four of the derricks are of the stiff leg type, while one of them is a specially constructed steel derrick which can turn a complete circle. The cable-ways are of about 400 feet span and operated by electric hoists.

Special Section at B. and A. Crossing— At the Boston and Albany Railroad Crossing the tracks of the railroad have been thrown to a temporary location to allow the driving of piles and placing of temporary girders, which will carry the tracks in their proper location during the construction of the subway underneath. At Portland Street there is a crossing by the Metropolitan Sewer, that will be taken care of by an inverted siphon which is now practically complete.

Main Street.—The method of building the subway at all these points is the same, namely, a 40-foot section is excavated to the bottom for the entire width of the subway. The sides of the trench are protected by 2 rows of 2-inch sheeting which is driven as the excavation proceeds. When a bottom has been reached in one of these 40-foot sections an under drain is laid to care for ground water, a 6-inch concrete mat is put in on which waterproofing is laid and on this the invert of the subway is built. The side walls are then carried up on both sides for the entire length of the section, the work being done in 3 stages to allow for removal of rangers and braces. Forms for the roof are then built, reinforcement placed and concrete put in.

The waterproofing for the lower half of the walls is placed directly on the lower row of sheeting as this will always be below ground water. The waterproofing for the upper half of the wall and roof is laid continuous, and a skin coat of 3 inches of concrete placed to protect the same.



The roof of the subway from the end of the incline to the junction of Harvard and Main Streets is flat and from there to Lafayette Square is arched with the exception of where it crosses under the Boston and Albany tracks. This section has a flat roof, heavily reinforced with 24-inch I-beams, the subway being low

enough at this point to allow the grade of the railroad to be dropped 8 feet in the event of the future abolition of the grade crossing.

Harvard Square Station.—At Harvard Square the incline for surface cars in Cambridge Common was undertaken and completed first, and a section of double-barreled subway for surface cars from the end of the incline to opposite the end of Church Street was completed in order to allow temporary diversion of surface car tracks. On Massachusetts Avenue north of Harvard Square and on Brattle Street portions of the surface car subway have been built by the slice method. These slices were 26 feet square and were excavated by using small road derricks. More recently one electric derrick has been installed for operation on the "slices" in Massachusetts Avenue.

East of Harvard Square the excavation for the express tracks of the Harvard Square Station is done by cable-way. Still further east between Quincy Square and Arrow Street another cable-way is at work on a standard arch section of the subway. Both of these cable-ways are operated by hoisting engines using compressed air furnished from a central compressor plant located at Dunster Street.

All concrete for the work at Harvard Square and vicinity is mixed in a central mixer located on Murray Street and hauled to the work in dump wagons.

Dana Hill Tunnel.— It is proposed to build the portion in Massachusetts Avenue, between Pleasant Street and Remington Street, a distance of about 2800 feet, by the tunnel method, which was considered cheaper on account of the greater depth, the cover over the roof being from 10 to 20 feet, and because it obviates the necessity of removing the surface tracks or interfering with the public use of the street. Between Pleasant Street and Bay Street the inside width of the structure is 26 feet; and between Bay Street and Remington Street, the part now under construction, 26 feet 10 inches, being made wider than the standard 25 feet on account of the required increased clearances for a 1600 foot radius curve. The inside height above top of rail is 17 feet $2\frac{1}{4}$ inches. The walls and invert are 2 feet 6 inches thick, and the arch at the crown 2 feet 3 inches thick, increasing to 3 feet 4 inches on the haunches. The rise of the arch is 8 feet $2\frac{1}{4}$ inches.

The contractor's plant is located on the property, known as the Champlin Estate, at the corner of Massachusetts Avenue and Bay Street, extending southerly to Green Street. This street, being about 21 feet lower than Massachusetts Avenue, is for the disposal of excavated material, which is conveyed in small cars, holding about a yard, from the shaft at Massachusetts Avenue on a trestle to a series of hoppers situated parallel to Green Street under which the teams receive their loads. Besides the trestle and large store yard, the plant consists of a power house, a stable for 25 horses, carpenter shop, blacksmith shop, concrete oil house, storehouse, engineers' and contractor's offices. In the power house are installed 2 duplex double-acting, electrically driven pumps which furnish hydraulic pressure for the operation of the shield jacks at either 1500 or 5000 pounds per square inch, the latter being used only where the shield sticks at 1500. There are also two electrically driven automatic compressors which furnish air at 80 pounds pressure for operating the Caniff grout mixer which forces grout into the space between the outside of the concrete arch and the surrounding earth due to the passage of the shell of the shield.

A shaft 60 feet long, at right angles to the tunnel, by 30 feet wide and 42 feet deep, partly in Massachusetts Avenue and partly on the Company's property, was first excavated, and the concrete invert and walls to a height of about five feet were placed. A sump was excavated in one corner of the shaft into a stratum of coarse gravel; a 4-inch electrically driven centrifugal pump with automatic float starting apparatus was installed, which has kept the excavation entirely free from water and is in operation but one-third of the time. It is proposed to utilize this shaft outside of the width of the tunnel for a permanent ventilating shaft and emergency exit.

The method of tunnel construction adopted is substantially the same as that used on the East Boston Tunnel as is described as follows: —Two drift tunnels, about 9 feet high and 8 feet wide, are excavated on the lines of the sidewalls. These are timbered continuously on the top and side nearer the center of the tunnel with 6-inch x 8-inch hard pine caps and legs. The outside legs are reinforced concrete boards 8 inches wide and $2\frac{1}{2}$ inches thick. The timber caps and legs are removed when the core is excavated, and are used over and over, but the concrete boards remain in place.

The sidewalks, to a height of 4 feet 4 inches above the rail, are then built in the drifts, in lengths from 16 to 20 feet.

These walls form the support and guide for the roof shield, which weighs about 70 tons, and travels on 8 steel rollers on each wall. The shield is propelled by fourteen 125-ton hydraulic jacks, attached to the shell at about equal distances on its perimeter, reacting on cast iron rods imbedded in the arch. The concrete arch is constructed in 30-inch sections under the tail of the shield at the same time that 30 inches in length of earth core, the full width of the tunnel, is being excavated in front of the cutting edge. The ground, at present, is so hard that this length will stand entirely unsupported. The centering for the concrete arch consists of steel ribs, 30 inches apart, with bevelled lagging 3 inches thick, which is laid on the ribs just ahead of the concrete. The steel ribs remain in place 2½ weeks, and are then removed and used again. When the shield has reached Remington Street it will be lowered and brought back through the completed structure to the shaft at Bay Street, made smaller to correspond to the narrow width, and started toward Pleasant Street.

The ground encountered for the most part has been sand and gravel cemented with a small amount of clay and very firm. A few boulders have been found varying in size from ¼ to 3 yards. At some places near the bottom the sand and gravel has none of the cementitious clay material.

The concrete is mixed in a "Municipal Concrete Mixer" situated in the shaft, underneath bins for the materials, the latter being filled from teams which dump through hatches in the bridge at the surface of the street.

The shield started from the shaft on Nov. 15, 1909, and up to January 5, 1910, has proceeded 235 feet.

Most of the material used in the subway is received at the central store yard, termed the Main Street yard, located on the Boston and Albany tracks between Massachusetts Avenue and Main Street. The stone arriving in cars is rehandled by a clam shell digger into teams or into bins. A concrete mixer which is fed from the stone bins mixes the concrete for use on Main Street. Other supplies are received from cars or in teams and stored in the Main Street yard until wanted.

Some material, chiefly cement and lumber, is received at a store yard in Somerville on the Boston & Main tracks, because

the Somerville yard is nearer to the work at Harvard Square than the yard at Main Street. A considerable amount of lumber has also been received by boat at the wharf on First Street, from which point it is taken as wanted.

The Hugh Nawn Contracting Company, Harry P. Nawn, President, are the contractors for the entire work. The form of the contract is what is termed "a percentage bonus fine contract," which provides that the Elevated shall pay the cost of the work to the contractor, except for his personal services, small tools, etc., and, in addition, a fixed percentage. If the contractor succeeds in completing the work for an amount less than the engineer's estimate, he will receive a bonus arranged on a sliding scale. If the actual cost exceeds the engineer's estimate, he will pay a fine.

At the present time the completed work consists of about 1275 feet of subway east of Kendall Square, including the incline, and three lengths of structure of from 60 to 100 feet on Main Street. Two hundred feet of the Dana Hill tunnel has been finished excepting the invert, and at Harvard Square 200 feet of double-barreled surface car subway has been completed as well as the incline in Cambridge Common.

Underground Structure Changes, incident to Subway Construction in Cambridge.— None of the conduits have been rebuilt in the final location, although the Telephone Company has filed plans showing its proposed changes. Where the subway work is interfered with by conduits the concrete work is stripped from the ducts and the cables hung from the bracing.

Cambridge Gas Light Company.— Permanent changes have been made at Harvard Square and vicinity, the 16-inch main from Harvard Square to Quincy Square, via Massachusetts Avenue, has been abandoned and a new 16-inch line laid from Quincy Square to Kirkland Street, to take the place of the Massachusetts Avenue line. An 8-inch line through Brattle Street has been abandoned and a 12-inch line laid through Church Street, the service connections being changed to side streets or otherwise provided for.

On the Main Street section, small sections of pipe have been abandoned at different places and the services rearranged.

It is the intention of the Gas Company to lay two mains parallel to the subway when it is completed, a 24-inch pipe on the north side and a 12-inch pipe on the south side, these mains to

continue practically the whole length of the subway from Pioneer Street to Harvard Square. A 30-inch main has been laid in Pioneer Street from Broadway to Main Street, in anticipation of the improvements in the gas company's supply system.

Metropolitan Water.— The 48-inch pipe at Central Square, crossing from Norfolk Street down Massachusetts Avenue to Magazine Street, has been partly relocated, the new location being through Austin and Prospect Streets to Massachusetts Avenue across the subway structure, with about 40 feet of 36-inch C. I. pipe to Magazine Street.

Plans are underway for the proposed crossing of 48-inch main at Harvard Square. It is planned to divide this main into three 24-inch pipes and carry them in a pipe crossing over the subway roof at the head of Boylston Street. This pipe will have to be relocated for a short distance northerly through Harvard Square.

Cambridge Water Department.— The work of relocating the water pipes in Main Street, Kendall Square, to Lafayette Square is practically completed. About 3700 feet of 12-inch pipe has been laid in the north sidewalk of Main Street where the old main in the street is abandoned. Where the cover over the roof of the subway is too small to permit passage of service pipes without danger of freezing a main will be laid in the southerly sidewalk.

At the Harvard Square section minor changes have been made, the service pipes being rearranged in Brattle Street with the idea of abandoning the 10-inch water main through that street.

Sewers.— The laying of sewers in the Main Street section is practically completed, the work consisting of building a sanitary sewer and a storm sewer in each sidewalk with all necessary connections, the city requesting and paying for larger sizes and in some cases for new sewers in the same trench with those required to replace those removed.

At Brattle Square a new sewer has been constructed outside the line of the subway on the westerly side continuing through to Eliot Square. There will be three sewer siphons along the line of the subway, at Portland Street a combined Metropolitan sewer and City sewer siphon, one at Douglass Street and one at Plympton Street. The Portland Street siphon is practically completed. Work has started on the Plympton Street siphon. This siphon has a depth of approximately 50 feet below the street, over 20 feet of it being through rock cut.

The approximate cost of all the pipe changes will probably exceed 5% of the total cost of subway.

Commonwealth of Massachusetts. — Charles River Basin Commission. — *Work in Progress at the Dam and Lock.*— The paving of the roadway is practically completed and the roadway gates at the drawbridge and the temporary fences are being erected. It is expected that traffic will be over the dam before the end of this month. No work is in progress on the embankment, although dredging is still in progress at Watertown.

Harbor and Land Commission. — The work of building a pile wharf on the northerly side of Reserved Channel, South Boston Flats, is in progress.

The work of dredging the berth on the easterly side of Commonwealth Pier to the depth of 35 feet at mean low water is in progress.

The building of the dike in Herring River, Wellfleet, is practically completed. The only work remaining to be done is the completion of the stone riprap facing, and the surfacing of the roadway, work having been suspended owing to the extreme cold weather.

The work of strengthening the timber jetties at Bass River, South Yarmouth, with granite chips, is still in progress, and nearly completed.

The work of dredging a channel in Plymouth Harbor to the wharf of the Plymouth Cordage Co. is suspended for the winter.

Contracts have been let for dredging an anchorage basin in Lynn Harbor, to the depth of 6 feet at mean low water; and at Cuttyhunk Inner Harbor, a basin with channel 2200 feet long and 12 feet deep at mean low water leading to it. Work on these contracts to begin in the spring.

One opportunity to see the effects of the storm may be found at North Scituate. The effects on riprap may be seen at the Third Cliff, Scituate.

Boston.—On Ferdinand Street, near the First Corps Cadet Armory, the Aberthaw Construction Company is erecting a one-story garage. This building is interesting in that it will have some 50-foot clear span girders of reinforced concrete. The whole building will be concrete, except the front, which will be brick.

East Cambridge.— The Carter's Ink Co. building, on First Street, built by the Aberthaw Construction Company, is completed and ready for acceptance by the owners. This has an elaborate concrete front, beautifully carried out in detail. The whole building is interesting and the work is unusually good. There has seldom been a concrete building in New England built as carefully. Densmore and LeClear were the engineers.

Buffalo, N. Y.— The Aberthaw Construction Company has made an exceptionally quick job of building a four-story manufacturing building for the Pierce Arrow Motor Car Co. The building is 307 feet long, 60 feet wide for two-thirds of its length and 20 feet wider for the remainder. Contract was given them in September, and the contractors were delayed three weeks by exceptionally bad weather, beginning serious work in October. The roof was put on December 7th and today the building is closed in. As a result the Pierce Arrow Motor Car Co. has given the Aberthaw Construction Company, without competition, contracts for two more additional buildings.

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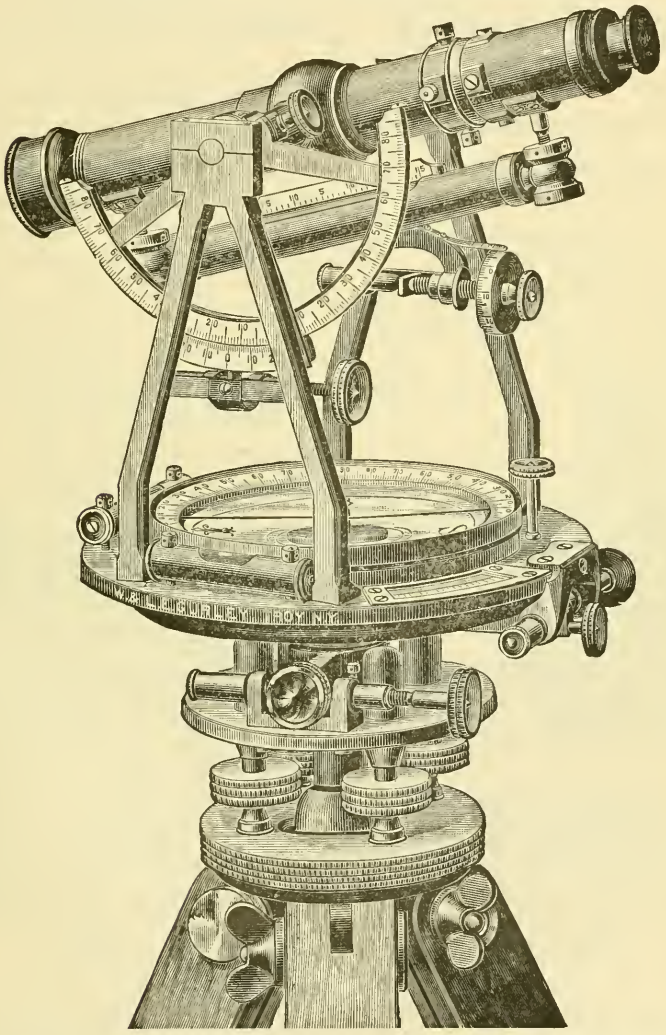

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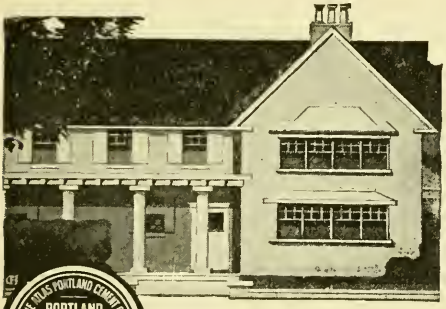

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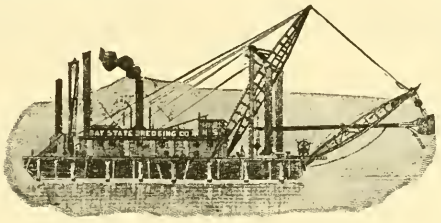

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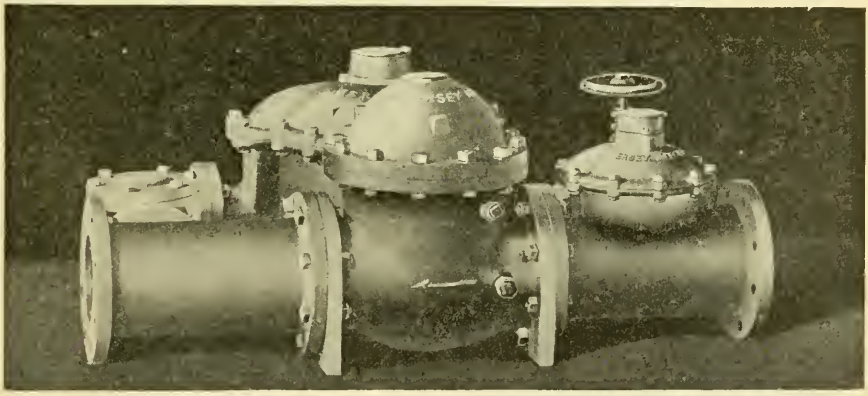

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BOSTON SOCIETY OF CIVIL ENGINEERS.
ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. FEBRUARY, 1910. No. 39

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, Feb. 16, 1910, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr Herman K. Higgins will give an illustrated talk entitled "Progress at Panama."

A most cordial invitation is extended to *ladies* to be present at this meeting.

BUSINESS OF THE MEETING: To ballot on the applications for membership as announced in this notice.

S. E. TINKHAM, *Secretary.*

EXCURSION.

There will be an excursion to the factory of the American Waltham Watch Company, Waltham, Massachusetts, on the afternoon of Feb. 16, 1910. Members will please meet at the North Station in time to purchase their own tickets, taking the 2.14 train for Waltham, arriving at 2.36 P. M. *The invitation extended by the officials includes the ladies.* The return trip will be from the Riverview station in Waltham, leaving at 4.06, 4.27 or 4.29 P. M.

EXCURSION COMMITTEE.

ANNUAL MEETING.

At the January meeting of the Society it was voted to repeat this year the principal features of the annual meeting of last year which proved so generally acceptable.

The meeting will be held on Wednesday, March 16th, at the Boston City Club, 9 Beacon St., Boston, where the very satisfactory accommodations of last year have been secured.

The Annual Meeting for the transaction of business and the announcement of the result of the letter ballot for officers will be held at 11.30 A. M. A short address will be made by the retiring president.

The Annual Dinner will be served at half past two o'clock in the Auditorium of the Club. At its conclusion, past President John R. Freeman will give a description of the Los Angeles Aqueduct, which will be illustrated by lantern slides.

In the evening a Smoker will be held in the Auditorium at which light refreshments, music and other entertaining features may be expected.

Further details will be furnished in a special circular to be sent out early next month and in the March *Bulletin*.

SANITARY SECTION MEETING.

The annual meeting of the Sanitary Section of the Boston Society of Civil Engineers will be held at the Boston City Club on Wednesday evening, March 2d, at 7.30 o'clock. The annual reports of the Executive Committee, also the Committees on Run-off, Uniform Sewage Statistics, standard specifications for vitrified sewer pipe will be presented. The speaker of the evening will be Dr. George A. Soper, Chairman of the Metropolitan Sewerage Commission of New York. He will address the section on the subject of air contamination. Dr. Soper will be remembered as the author of "Ventilation of Subways." He can speak on this subject with authority and with interest.

The meeting will be preceded by the usual dinner at six o'clock.

MEETING OF THE LOCAL MEMBERS, AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

The local members of the American Society of Mechanical Engineers will hold their March meeting in Room 6, Lowell Building, Massachusetts Institute of Technology, on Friday eve-

ning, March 11th, at 8 o'clock. This will be a joint meeting with the Boston Section of the American Institute of Electrical Engineers. Mr. M. W. Alexander of Lynn will read a paper on "The Training of Men—A Necessary Part of a Modern Factory System." This paper describes in some detail the work the General Electric Company are doing at Lynn in the way of training young men to become shop foremen, superintendents, and to take other responsible positions in that Company, and should be of interest to engineers generally.

A cordial invitation is extended to the members of the Boston Society of Civil Engineers to attend this meeting.

MEETING OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.

A meeting conducted by the American Institute of Electrical Engineers, with the co-operation of the American Society of Mechanical Engineers, will be held at the Boston City Club, 9 Beacon Street, Boston, on Wednesday, Feb. 16, 1910, at 8 o'clock P. M.

The following papers relating to industrial power will be presented:—

The Applicability of Electrical Power to Industrial Establishments by Dugald C. Jackson.

Central Stations versus Isolated Plants for Textile Mills by Charles T. Main.

The Supply of Electrical Power for Industrial Establishments from Central Stations by R. S. Hale.

Illumination for Industrial Plants by G. H. Stickney.

The Requirements for an Induction Motor from the User's Point of View by Walter B. Nye.

A cordial invitation is extended to the members of the Boston Society of Civil Engineers to attend this meeting.

MEMBERSHIP CARDS.

The membership cards for 1910 are now ready for distribution and one will be mailed to any member who applies to the Secretary.

CANDIDATES FOR MEMBERSHIP.

To be balloted on at meeting Feb. 16, 1910.

As Members.

William Alfred Cobb, Auburn, Me. (b. 1885). Graduated from the University of Maine in June, 1908, and received degree of B. S. in civil engineering. During the season of 1905 was employed by the Water Works Department of Auburn, Me.; during the summers of 1906 and 1907 acted as rod and level man in the employ of the United States Geological Survey; at present is in charge of Cement Testing Laboratory of the Androscoggin Reservoir Co., Lewiston, Me. Recommended by H. S. Boardman, Walter H. Sawyer, H. K. Barrows and H. P. Hamlin.

Samuel Prescott Coffin, West Newbury, Mass. (b. 1883). Educated at the Newburyport High School. In 1891 entered the service of the Boston & Maine R. R. as rodman and is now an assistant engineer with that company. Has been engaged on construction work as follows: Separation of grades at Charlestown Prison Point, at Belchertown, at South Deerfield and at Malden; on the Free River Bridge, Portland, Me; on the piers and grain elevator, Mystic Docks; in charge of work at coal handling trestle and coal yard at North Wharf, Mystic Docks; assistant engineer at Pier 46, Mystic Docks; on separation of grades at Holden, Mass.; on improvements at Alton Bay, N. H.; on addition to North Station, heating plant at Charlestown; drawbridge at Miller's River, Broadway Bridge at Chelsea, repairs to coal wharf at Portland, repairs to P. & R. Pier at Salem, and at present on work at Pier 46, Mystic Docks. Recommended by J. P. Snow, F. B. Rowell, L. C. Lawton and W. H. Ellis, Jr.

William J. Fielding, Somerville, Mass. (b. 1880). Graduate of High School. Employed as rodman three years on Metropolitan sewers in Boston; one year by the Town of Brookline; two years as transitman on surveys and construction of high tension line for Massachusetts Electric Co.; one year as leveler and general foreman on Panama Canal; six months on railroad location in Costa Rica and Republic of Panama, as engineer in charge; eight months on railroad location surveys and grade crossing studies with G. M. Tompson of Wakefield, Mass.; and since June, 1909, United States Surveyor on Intra Coastal Canal Survey. Recommended by G. W. Blodgett, W. M. Brown, W. T. Wiley and F. P. Morrill.

Clarence Brown Humphrey, Swampscott, Mass. (b. 1873). Educated in public schools of Marblehead, Mass., and Laconia, N. H. Entered the employ of Aspinwall & Lincoln, civil engineers, Boston, in May, 1891, during development of Aspinwall Hill, Corey Hill and West End properties in Brookline, and with them on various engineering and surveying work until September, 1909, when he accepted position of assistant surveyor in Land Registration Office, Boston. Is now surveyor for Court, Land Registration Office, Boston. Recommended by E. H. Lincoln, Thomas Aspinwall, F. M. Miner and F. O. Whitney.

Leroy Deering Peavey, Malden, Mass. (b. 1876). Graduated from Phillip's Exeter Academy, 1894, and from Massachusetts Institute of Technology, 1898. Structural engineer with New England Structural Co. for about two years; also practiced in New York City; engineer for American Bridge Co., 1901, 1902; for Boston Bridge Works and Purdy & Henderson, 1902, 1903; chief engineer for H. P. Converse & Co (Structural Steel and General Building Construction and Reinforced Concrete) from 1903 to present time. Recommended by J. R. Worcester, E. E. Pettee, G. H. Brazer and G. C. Currier.

As an Associate.

Theodore Ludwig Keppler, Brookline, Mass (b. 1847). Followed the sea from 1863 to 1870, passed examination as captain, 1867, had charge of coasting schooner on Congo River, South Africa, in 1868. Entered employ of Standard Sugar Refinery, 1870; studied at home engineering and chemistry and advanced through different positions to assistant superintendent of Standard Sugar Refinery, continued in the same position with the American Sugar Refining Company when the latter took over the management of the "Standard"; became superintendent in 1897, and occupies this position at the present time. Recommended by F. I. Winslow, William Jackson, F. A. McInnes and S. E. Tinkham.

APPLICATIONS FOR MEMBERSHIP.

The following applications for membership have been received and are now before the Board of Government for approval. Members having information which will assist the government in its consideration of these applications are requested to communicate at once with any member of the Board. Communications will be regarded as confidential and for the use of the Board alone.

As Members.

T. Morris Brown, Brookline, Mass. (b. 1869). B. A. at Johns Hopkins University, 1891; graduate student in electrical engineering at Johns Hopkins University, 1892; graduate student in electrical and mechanical engineering, M. I. T., 1893; shop work and drafting, Walker Co., Cleveland, O., 1894–1899; draftsman with Wellman Seaver Engineering Co., Cleveland, 1899–1900; electrical engineer, Brown Hoisting Machinery Co., Cleveland, 1900–1905; engineering salesman, Ingersoll-Rand Co., at Cleveland, O. and St. Louis, Mo., 1905–1909; engineering salesman, Taylor Iron & Steel Co., 100 Broadway, N. Y. (factory at High Bridge, N. J.), since Nov. 15, 1909; member, Engineers' Club of St. Louis. Recommended by Gaetano Lanza, F. H. Fay, E. F. Miller and Peter Schwamb.

Frederic Kent Lawrence, Boston, Mass. (b. 1884). Attended Brown University, 1902–1903; from 1904 to December, 1906, draftsman for Berlin Construction Company, Berlin, Conn.; December, 1906, to June, 1907, draftsman and checker for Milliken Bros., New York; June to November, 1907, draftsman and checker for Levering & Garrigues Co., New York; July to December, 1908, assistant engineer, Boston Elevated Railway Co.; December, 1908, to May, 1909, draftsman and checker for New England Structural Co.; May, 1909, to date assistant engineer, Boston Elevated Railway Company, Department Elevated and Subway Construction. Recommended by Daniel Scowler, Jr., H. C. Hartwell, C. T. Fernald and L. S. Cowles.

Edward Guild Lee, Portland, Me. (b. 1885). Graduated from Civil Engineering Department of Massachusetts Institute of Technology, 1907. Rodman, note-keeper and transitman, summer of 1903 for R. C. Allen, at Manchester, Mass. and A. T. Palmer of Boston; transitman for Mr. Cutter of Wakefield, summer of 1904; notekeeper and transitman for Massachusetts Harbor and Land Commission on town boundary work, summer of 1906; assistant hydraulic engineer, New England Office, S. Morgan Smith Co., York, Pa., May, 1907, to January, 1910; and now engaged as engineer with Sawyer and Moulton, Portland, Me. Recommended by H. L. Coburn, Dwight Porter, H. K. Barrows and C. B. Breed.

Charles Bernard McNally, Boston, Mass. (b. 1876). Graduate of public schools of Marlboro, Mass.; from July, 1896, to March, 1906, assistant to James F. Bigelow, City Engineer, Marlboro, Mass.; from March, 1906, to January, 1907, with F. A. Barbour, sanitary and hydraulic engineer, Boston; January, 1907, to March, 1907, assistant to R. E. Cairns, city engineer, Waterbury, Conn.; March, 1907, to date with Boston Elevated Railway Company, Elevated and Subway Construction as assistant engineer. Recommended by H. C. Hartwell, F. A. Barbour, G. A. Kimball and L. S. Cowles.

Henry Walter Routenberg, Keene, N. H. (b. 1885). Was educated at Sheffield Scientific School of Yale University, taking the civil engineering course and graduated with the degree of Ph. B.; since graduation has been on the engineering force of the Boston Elevated Railway Co.; at present on the Cambridge Subway. Recommended by G. A. Kimball, E. E. Albee, W. T. Wiley and F. H. Carter.

Ralph Edmund Smith, Lynn, Mass. (b. 1888). Educated in the public schools of Lynn, Mass.; from 1903 to 1904 rodman and 1904 to present time transitman for city engineer of Lynn, Mass., on work connected with sewer department, street lines and grades and assessors plans. Recommended by G. I. Leland, E. M. Trefethen, C. B. Breed and H. K. Barrows.

Louis P. Steele, Jr , Boston, Mass. (b 1886). Graduate of Rindge Manual Training School, 1901 and one year at Cornell University; employed by City of Cambridge in 1903; with Metropolitan Sewerage Works, 1904–1906; with Marx & Windsor, Havana, six months; with Charles A. Haskin on compressed air work in Louisville, Ky., for six months, and at present employed by Boston Elevated Railway Co. as a transitman. Recommended by F. H. Carter, G. A. Kimball, E. E. Albee and L. S. Cowles.

Ralph H. Sutherland, Lynn, Mass. (b. 1866). Graduate of School of Mechanic Arts, Massachusetts Institute of Technology. 1886; worked on structural designing and draughting with Boston Bridge Works, 1887–1889, and G. W. & F. Smith Iron Co., 1901–1903; 1904 to present time with the Lynn Water Works as an assistant to the superintendent; since June, 1908, head of engineering and draughting department. Recommended by J. R. Worcester, G. I. Leland, E. M. Trefethen and E. F. Dwelley.

Edward Wright, Jr., Lawrence, Mass. (b. 1884). Summer work in civil engineering office in Worcester two summers; course at Lowell Textile School; partial course at Worcester Polytechnic Institute; assistant to engineer in charge of outside construction, Arlington Mills, Lawrence, Mass.; in draughting room American Woolen Co., Lawrence, Mass., and American Machine Co., Pawtucket, R. I.; at present assistant engineer Department, Massachusetts Board of Health. Recommended by X. H. Goodnough, W. S. Johnson, H. P. Wilson and R. M. Whittet.

ENGINEERS' DINNER AT BOSTON, JAN. 21, 1910.

The following account of the dinner is taken in part from the February issue of the *Journal* of the American Society of Mechanical Engineers:

"On Friday evening, January 21, upwards of 425 engineers, representative of the engineering profession as a whole, attended the dinner at the Hotel Somerset, Boston, given by the American Society of Civil Engineers, and the Boston branch of the American Institute of Electrical Engineers to the presidents of these societies, George Westinghouse, George B. Francis and L. B. Stillwell; to John A. Benzel, president of the American Society of Civil Engineers, and other distinguished guests. While the attendance was mainly from Boston and vicinity, there was a large representation from New York and a considerable number from other cities. This was the largest and most enthusiastic meeting that the Boston engineers have held and it emphasized in an

unmistakable way the cordial relations existing between the different branches of the profession and the earnest desire for coöperation. There were present eight presidents of engineering societies or institutions, besides prominent members of many others, including architectural and scientific societies closely identified with the work of engineers.

"Following the dinner, Mr. C. B. Edwards, chief Engineer of the Fore River Shipbuilding Company, gave a talk, illustrated by lantern slides, on The Main and Auxiliary Machinery of the Battleship 'North Dakota.' This is the new 'Dreadnaught' of the U. S. Navy, turbine driven of 20,000 tons capacity. Photographs were thrown on the screen of the ship under trial of the machinery after installation, and many detail drawings were shown of the arrangement of the boilers, machinery and piping.

"Prof. Ira N. Hollis of Harvard University, chairman of the committee on meetings of the Society in Boston, acted as toastmaster and referred to an inquiry made when he came to Boston 17 years ago as to why he had removed 'to that remote corner of the country where the engineering efforts were but feeble compared with those of the West.' He said the criticism was true geographically but that Boston was in fact a great center of engineering, examples of which he instanced. He then introduced the next speaker, Mr. George B. Francis, president of the Boston Society of Civil Engineers, the oldest society in America, which has for some time had under discussion the question of an engineering building and clubhouse."

ADDRESS OF PRESIDENT GEORGE B. FRANCIS.

The society which I have the honor to represent here tonight has just been referred to as the oldest engineering society in America.

As such is the case, the society is justified in having a pardonable pride in its distinction, and in the further fact that its organizers were among the "pioneers of progress" in the material development of the latent resources of our great country.

Other and greater societies have since been organized and many of the members of the Boston Society of Civil Engineers are enrolled in their numbers.

This fact, however, will never militate against the continuance and the prosperous existence of the Boston Society of Civil Engineers.

The tendency of the present time is toward local organizations in the various national societies of engineers, and local organizations have been perfected for Boston for both the mechanical and electrical engineers.

By right of a long and thriving existence the Boston Society of Civil Engineers has naturally become the local organization for civil engineers, and by its antiquity and splendid record has come to hold an established position among the civil engineering societies of the nation.

There is no profession which has contributed and accomplished more toward the vast upbuilding and material development of this country than the engineering profession, and it is fair to say that the high reputation for personal integrity, honesty and diligence which our predecessors have earned, which for many years has characterized the profession of engineering, and which it is incumbent on us to maintain, is due to the loyalty of fellow engineers to one another, to their great love for their profession and to their close association.

In no part of this country more than in New England, one of the smallest parts, territorially, of the United States, has the high regard for the profession been so amply demonstrated.

It is for this reason that in New England there are today the foremost technical schools, many of the foremost members of our profession, and the oldest and the most active professional societies and associations of the country.

As this is the first united gathering in Boston of the representatives of so many local engineering associations it would be singular if this occasion did not excite the desire that by closer association we might all profit through mutual help and instruction.

It would be unfortunate to let this opportunity pass without calling attention to a subject which has undergone serious consideration on the part of many engineers in this vicinity, and it is therefore my purpose to speak about a scheme, which it is hoped, may be carried out successfully in the near future.

This is to provide the engineering societies in Boston with a permanent home.

For some time past this subject has been before the Boston Society of Civil Engineers, and various committees have been appointed to devise ways and means to bring it about.

On Feb. 17, 1909, a committee on larger membership and club house reported on several schemes. One of these which contemplated a "union club house without cuisine, for the exclusive use of the several engineering and architectural societies whose headquarters are in Boston," to be owned and run by the Boston Society of Civil Engineers, was endorsed at the annual meeting in March, 1909, and the Board of Government was at that meeting authorized to expend money to that end as might be required to a limit of $125,000 for land and building.

The Board of Government was also thereafter duly authorized to expend the special fund of the society amounting to a little more than $25,000 for that object and for several months a special committee has been soliciting subscriptions to increase this fund with success.

The total amount now available is not, however, enough to warrant this society in going ahead, on its own account, in securing quarters, even for a project of simple character, providing only for office rooms, library and an audience room. Moreover it is undoubtedly the fact that the group of local members of the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, as well as other local kindred societies, are in much the same condition as the Boston Society of Civil Engineers, as regards their ability to carry out, each on their own account, such a scheme as would adequately fulfil their ambitions.

Progress toward the desired result by each body or society for itself seems unavoidably to be at a standstill.

The committee of the Boston Society of Civil Engineers, above referred to, considered the possibility of co-operation with the local members of the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, the New England Water Works Association, the Boston Society of Architects, the Boston Architectural Club, the New England Association of Gas Engineers, the New England Street Railway Club and possibly other kindred societies.

It found that within a radius of fifteen miles of Boston about 5,000 men were engaged in the engineering and architectural professions, and the committee suggested that such a body of men might well combine and organize a stock company.

This could run a property which should be a home for local engineers and embrace a club house with restaurant, smoking rooms, sleeping rooms and other features, and it is such a scheme that I wish to outline in my few remaining remarks.

To carry out this idea a corporation should be formed, with power to hold real estate, which might be called "The Boston Engineers Club" or "Association." This should issue securities in the form of stocks and bonds and invite subscriptions by individual members of the various societies in this locality, by the societies themselves, and by any persons who would care to subscribe to the same as an investment.

In order to insure a successful issue, the various societies should agree to subscribe beforehand to substantial blocks of stock, in proportion to their membership.

This company should be managed by a Board of Trustees elected principally by the societies which hold the stock, as such a board would have the best interests of a purely engineering club at heart. The corporation should then acquire and equip a suitable club house.

In order to provide revenue to maintain the establishment, the various societies should rent space in the building for the use of their members. Each society could thus rent the exclusive use of a few rooms and be entitled to the use, in common with the other societies, of the audience room and the restaurant.

Further revenue could be obtained by leasing the audience room for special entertainments, when not required by meetings of the societies.

There will also be a regular source of revenue in a general membership, conveying the privileges of the club house at large, exclusive of the rooms rented to the societies, to such as desire the name.

Under such an arrangement the revenue of the corporation would be derived from rentals to the societies, fees for club privileges and profits on refreshments.

In this way all the societies will be housed under one roof, and the members thereof enjoy extensive privileges without payment of other than the regular dues of their societies. There will be no obligation on anyone to contribute to the support of the club house, unless he desires to enjoy the general privileges of the building, and obtains the use from the corporation upon the pay-

'ment of stipulated fees. This relieves the younger members, and those not so desiring, from the necessity of taking up the greater obligations of the general club.

More might be said at this time about the details of this, or some other scheme, or the question of leasing an existing building, or constructing a new building, or the best location for such a building, but these are matters which would be readily solved when it was once decided to take action.

If it becomes evident that there is a real demand, among the engineering profession, in this vicinity, for some such united club house, it is a foregone conclusion, that in a city of the wealth and standing of Boston, sufficient money can be raised to carry out the project to a successful termination.

Probably the subscriptions already obtained by the special committee of the Boston Society of Civil Engineers, together with the permanent fund of that society can be made available toward a stock subscription for such a project.

If there is any enthusiasm on this subject on the part of the members of any of the societies now represented here, and if there is any favorable feeling in support of obtaining a modern club house, which may equal in appointments those of our profession in New York, it is hoped that it may become plainly evident and that a way may be found to appoint a joint committee, from each society represented, to formulate a plan, or at least which can ascertain the amount of funds obtainable for construction, the probable revenue and expenses for operation.

Some of our distinguished guests are members of the Engineers' Club of New York, and are familiar with the affairs of that club, and its relation to the society headquarters maintained nearby.

I have no doubt but that they will willingly place their experience at our disposal now or when we come to consider the desirability and practicability of developing a scheme along some general lines, that have been mentioned, for the purpose of uniting our professions.

"Mr. John A. Bensel, president of the American Society of Civil Engineers, warmly advocated the plan proposed by Mr. Francis, saying that an engineers' club could be maintained in a dignified form, keeping well within the spirit of the profession, which would not only agreeably fill the needs for companionship, but would widen the horizon of the different members of the profession."

"The plan was approved by Mr. R. Clepston Sturgis, president of the Boston Society of Architects, and Mr. L. B. Stillwell, president of the American Institute of Electrical Engineers, who took the occasion also to speak happily of the relations existing between mechanical and electrical engineers and of the need of co-operation; in his remarks he paid a tribute to Mr. Westinghouse saying that for 40 years, during which there had been so tremendous a development of industries, he has stood in the very forefront. It has not been a matter of financial results merely, but of a multitude of inventions promoting the comfort of society and protecting it against dangers resulting from new engineering developments."

"Following the speech of Mr. Stillwell, Hon. Charles Francis Adams said a few words of appreciation of Mr. Westinghouse, his intimate friend, after which Mr. Westinghouse was introduced and given a hearty welcome, the audience rising." Mr. Westinghouse said in part: It seems fitting and logical that we should encourage closer and more intimate relations among all engineering societies, in order that we may benefit from the power and influence which comes from combined efforts, and by working on broad, generous lines cause individual and professional prejudice to give way to that healthful condition of mind so necessary to correct conceptions and actions.

For many years the tendencies have been toward large and powerful railway and industrial combinations and their constant skilful development. The very magnitude of these, with the evil practices so frequently disclosed, has so aroused the public, that there is a fixed determination to establish an exacting governmental control of practically all forms of corporation in order that competition may be encouraged and not stifled, but, seemingly without due regard to the real objects in view, viz., the securing of the best public service in all forms; the best foods and goods for our daily needs; the greatest possible comfort to the masses; and as great freedom as possible from those restrictions which hinder rather than promote honest endeavors.

Fortunately there are indications, of which this gathering is one of many, that the great leaders in our affairs (as witness the meetings of the Governors of numerous States now being held in Washington) are alive to the importance of *the regulation of legislation* and the creation of sentiments which will bring business men to their senses.

The engineering societies, by like joint action, have it in their power to do much to better conditions. Probably there is no better way for them to do so than to show, from their knowledge and experience, that *unregulated competition and rivalry in business* have established conditions which have made our costs greater and rendered ideal conditions in industrial engineering matters most difficult of realization.

To make this clear I need only call attention to the effect of this unregulated competition in one great industry—the electrical—which has grown up in less than twenty-five years. No user of electrical apparatus can fail to appreciate the advantage if when some repair part was needed certain standards has been followed, but it is a lamentable fact that with an single exception of uniform basis for incandescent lamps, there are now practically no standards.

I have long believed, and have urged upon my associates, for the fourteen years during which the two large electrical companies have had the joint use by a license agreement of several thousands of patents relating to their business, that by co-operation in the development of apparatus, by the use of the same designs, and by the exchange of engineering and manufacturing particulars, there would be evolved the very best of all kinds of electrical machinery and details, and that the products of the two companies could be made interchangeable, not only to the advantage of purchasers and users of electrical apparatus, but also to the advantage of the companies themselves. Other views have prevailed, however, and there has existed an unregulated competition which has made the electrical industry about the poorest of all in the matter of profits.

There are many here who know of the consequences of the adoption of different gages for railways, the final result being a change involving enormous expense to those railways having the disadvantage of having adopted a standard which differed from that of their more powerful neighbors. Unless there be some action in the near future, by those who have the gift of foresight, we shall soon have a like difficult condition to meet, due to the establishing of widely different systems for the electrification of our main railways. It seems certain that a system capable of universal use should be selected in the near future so that an electric locomotive or car of one railway could operate upon all other lines.

By a combined effort of all the engineering societies, with the financial support of all manufacturers, who would be largely benefited and could well afford to pay in *pro rata* amounts the expense of a well-equipped and officered bureau of standardization, it seems to me such a bureau could be established, and could work a reform of incalculable value in our present practice, thus forestalling governmental activity in this direction.

The public needs no further incitement to the regulation of such matters by the Government. What is needed is such wise co-operation on the part of the large interests involved, and such fair consideration of the public rights, as may stay further governmental action and finally render it unnecessary.

At the close of the meeting Prof. D. C. Jackson, chairman of the local section of the American Institute of Electrical Engineers, submitted the following motion, which was seconded by Mr. I. E. Moultrop of the American Society of Mechanical Engineers and by Mr. C. S. Clark of the Boston Society of Civil Engineers, *Voted*, That our chairman be authorized to memorialize each of our several members and the members of allied societies and architects, to have such societies appoint representatives to serve on a committee to materialize, mature and forward a project of a nature such as has been advocated and referred to by Mr. Francis. The motion was carried by a unanimous vote.

MINUTES OF MEETINGS.

JANUARY MEETING OF THE SOCIETY.

Boston, Jan. 26, 1910. A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.50 o'clock P. M.

President George B. Francis in the chair; eighty members and visitors present.

The record of the last meeting, as printed in the *Bulletin*, was approved.

On motion the President was requested to appoint a committee to nominate officers. The following were appointed as the committee: George A. Kimball, F. A. Barbour and R. A. Hale. This committee reported later in the meeting the following names

and, by vote of the Society, they were chosen as the nominating committee, Joseph R. Worcester, F. H. Carter, Charles R. Felton, Richard K. Hale and Charles R. Gow.

The Secretary announced the death of John H. Emigh, a member of the Society, which occurred Jan. 6, 1910, and on motion the President was requested to appoint a committee to prepare a memoir.

The Secretary presented the report of the committee appointed to prepare a memoir of Earle H. Gowing, and on motion, it was voted to accept the report and print it in the *Journal* of the Association of Engineering Societies.

The President reported for the Board of Government a recommendation that the Annual Meeting this year be similar in form to that of a year ago. On motion of Mr. E. P. Adams, it was voted that the Board of Government be requested to arrange for the Annual Meeting, and other functions similar to those held last year.

On motion of Mr. R. K. Hale, the following votes were passed: —

That the thanks of the Society be extended to Harry P. Nawn, President of the Hugh Nawn Contracting Company, for courtesies shown this afternoon on the occasion of the visit of the Society to the work now in progress on the Cambridge Main Street Subway.

That the thanks of the Society be extended to the Officials of the Boston Elevated Railway Company for courtesies shown this afternoon on the occasion of the visit of the Society to the work now in progress on the Cambridge Main Street Subway.

The literary exercises of the evening consisted of a very interesting talk by Mr. William L. Church, entitled "Hydraulic Power Development with special reference to Ambursen Dam Construction."

The talk was illustrated by a large number of lantern slides.

Adjourned.

S. E. Tinkham, *Secretary.*

JANUARY MEETING OF THE SANITARY SECTION.

The last meeting of the Sanitary Section was held at the Boston City Club on Wednesday evening, Jan. 12, at 7.30 o'clock.

Mr. William Gavin Taylor of the Passaic Valley Commission gave an admirable talk on the theory and design of trickling sewage filters, illustrated with lantern slides. In the course of his remarks Mr. Taylor described many types of sewage sprinklers and discussed quite fully the different types of under-drainage systems of trickling filters.

The other speaker of the evening was Mr. O. M. Weand, the builder of the sewage disposal plant at Reading, Pa. Mr. Weand described in detail the construction and operation of the plant and particularly that of the rotary sewage screen, which has effected great economy in the operation of the sewage sprinklers by removing nearly all of the suspended matter. His talk was also illustrated.

About fifty members and guests were present.

Robert Spurr Weston, *Clerk.*

LIBRARY NOTES.

Recent Additions to the Library.

State Reports.

Massachusetts Harbor and Land Commission, Annual Report for 1909.

City and Town Reports.

San Francisco, Cal., Report on Auxiliary Water Supply System, 1909.

St. Louis, Mo. Annual Report of Water Commissioner, 1908 1909.

Miscellaneous.

Reports of National Board of Fire Underwriters on the following municipalities:

Buffalo, N. Y., Davenport, Ia., Dubuque, Ia. Elizabeth. N. S Freeport, Ill., Lancaster, Pa., Manchester, N. H., New Brunswick N. J , Ogden, Utah, Quincy Ill., Salt Lake City, Utah, York, Pa.

RECENT ADDITIONS TO THE CLEMENS HERSCHEL LIBRARY.

When Railroads Were New, by Chas. F. Carter.
Rules of Order, by Henry M. Robert.
Christopher Hibbault, Roadmaker, by Marguerite Bryant.
Phœnixiana, by John Phœnix (*pseud.*).
An American Engineer in China, by Wm. B. Parsons.
Adventures of a Civil Engineer, by C. O. Burge.
Life of Major-Gen. Sir Chas. Wilson, by Col. Sir. C. M. Watson.

All of the above were presented by Mr. Clemens Herschel.
Popular Mechanics has been added to the magazine section.

FREDERIC I. WINSLOW, *Librarian.*

LIST OF MEMBERS.

ADDITIONS.

ELMER C. HOUDLETTE . . . . 81 Cross St., Somerville, Mass.
RALPH J. SHERRIFF (Sanitary Section) 16 Fairfield Ave., W. Medford, Mass.

CHANGES OF ADDRESS.

R. C. AIKEN . . . . . 46 Pond St., Waltham, Mass.
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G. M. WARREN . . . . . 7 Arlington St., Newton, Mass.
H. E. WHITING . . . . . 2 Central Sq., Cambridge, Mass.
H. P WILSON . . . . . 23 Beacon St., Hyde Park, Mass.

NEW ENGINEERING WORK.

(Under this head the Excursion Committee proposes to present each month a brief résumé of engineering work in progress in New England, as far as such information is readily obtainable. The assistance of members is desired, and items of interest will be gladly received. Such items are intended to include not only works of exceptional magnitude or containing novel features, but also engineering construction work of all kinds and all degrees of magnitude. Notes should be in the hands of the Committee not later than the 1st Wednesday of each month.—FRANK H. CARTER, Secretary, Excursion Committee, 147 Magazine Street, Cambridge, Mass.)

Commonwealth of Massachusetts.—METROPOLITAN PARK COMMISSION.—*Alewife Brook Purification.*—Work of excavating new channel for Alewife Brook.

Work of construction of concrete retaining walls between Broadway and Massachusetts Avenue.

Mystic River Reservation.—Grading, surfacing and other work for drives along Mystic River from Boston Avenue to Main Street.

HARBOR AND LAND COMMISSIONERS.—The construction of a pile wharf on the northerly side of Reserved Channel close to L Street bridge, South Boston Flats, is in progress.

The work of dredging berth on easterly side and at outer end of Commonwealth Pier, South Boston Flats, to a depth of 35 feet at mean low water, is in progress.

At Herring River, Wellfleet, surfacing of the dyke is being done which will complete the work.

The work of strengthening the timber jetties at Bass River, South Yarmouth, has been completed.

Work on the Cape Cod Canal is progressing now. Two large steel derricks, operating scoop buckets, are deepening the excavation made by the Lockwood dredge about 1880 to 1883.

A long boom orange peel dredge is excavating a channel through Scusset beach to enable a suction dredge to begin work there.

Near Buzzards Bay station two dredges are excavating and other equipment is engaged in building foundations for a bridge.

Other dredges are at work excavating a channel through Buzzards Bay.

CHARLES RIVER BASIN COMMISSION.—*Work in Progress at the Dam and Lock.*—The roadway over the Dam has been completed and was opened to travel on Jan. 27. This roadway is eighty-five feet wide between fence lines, with ten-foot sidewalks

on each side. The roadway is paved with granite blocks on a gravel base instead of a concrete base, as considerable settlement is expected for some time to come, owing to the depth of the fill, which is about fifty feet as a maximum. There are two tracks for the Boston Elevated Railway in the center. The roadway-gates at the drawbridge are now in operation. They are similar to those in use on the Charlestown Bridge, swinging from an island in the center of the roadway to each side. The bridge is a Scherzer rolling-lift bridge, forty-five foot span, with two leaves so that one leaf can be closed in advance of the other and thus save a little time in the length of the openings, and also to enable repairs to be made, when necessary, to one leaf while traffic is passing over the other.

At Watertown riprap has been placed to protect the slope in the channel immediately below the dam. The dredging of the channel is nearly completed.

Boston Elevated Railway Company.— Cambridge Main Street Subway.—*Dana Hill Tunnel.*—A record of sixty-two and one-half feet was made last week in driving the Dana Hill shield.

Elevated and Subway Construction. — *Dudley Street Station Alterations and Additions.* — The extensive alterations and new construction at this station have been continued during the winter in spite of somewhat adverse weather conditions. The east pavilion is rapidly approaching completion and the immediate erection of a covered platform on the outside of the East Elevated (surface) loop is contemplated.

After all the proposed changes have been made it is felt that practically no confusion can prevail, the more or less magnified inconvenience that the patrons of the Railway Company have been put to at this point since the opening of the Forest Hills Extension, necessarily incident to mixed construction and maintenance, being eliminated.

City of Boston. — Engineering Department. — The draw in Neponset Bridge, Neponset to Quincy, has just been reconstructed by the Boston Bridge Works, Inc. It is a two-leaf bascule, each leaf extending as a cantilever to the centre of the 36-foot channel. The girders are 24-inch Bethlehem girder beams, six in each leaf.

The channel end of each girder is kept from deflecting independently of the other five girders in the leaf by a built cross girder, 24 inches deep. As a leaf closes the counterbalance ends of the girder which react upward all come to bearing exactly together, the stops having been adjusted by screws. Finally when the draw is closed the two leaves are connected by a rigid lock at each side of the bridge. By these devices it is believed that a load anywhere on either leaf will be distributed to a large extent over all twelve of the girders in both leaves. The draw is now safe for 40-ton trolley cars. Bridge engineers may be also interested in the device by which the floor of the bridge is hinged without the use of a " flap."

East Boston. — Work is in progress on a building 142 feet x 91 feet for storage purposes for the Standard Oil Co. Superstructure is of reinforced concrete with tile curtain walls. Foundations of reinforced concrete — concrete piles. Benjamin Fox, Inc., builders.

Boston. — Work is practically completed on a reinforced concrete building, a garage for Studebaker Bros., on Cummington Street, 171 feet x 51 feet, 2 stories and basement high. Benjamin Fox, Inc., builders.

Canton, Mass.—The reinforced concrete factory and power house for the C. C. C. Fire Hose Co., 127 feet x 52 feet is finished. Reinforced concrete floors and foundations, tile walls, engine foundations, etc. Benjamin Fox, Inc., builders.

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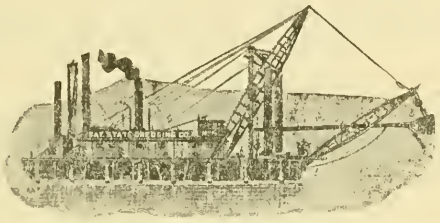

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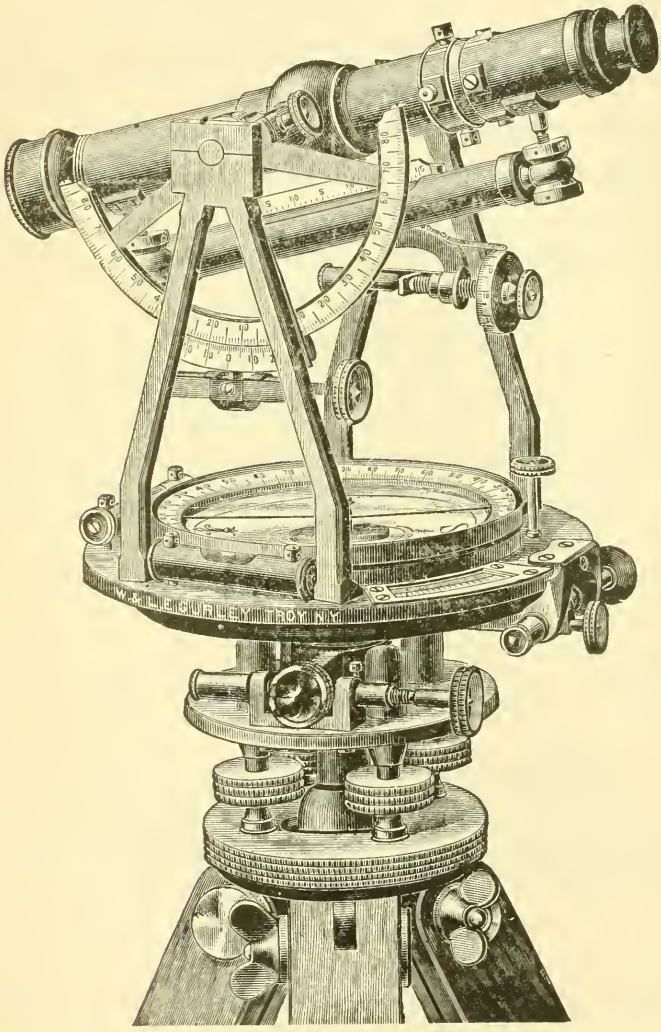

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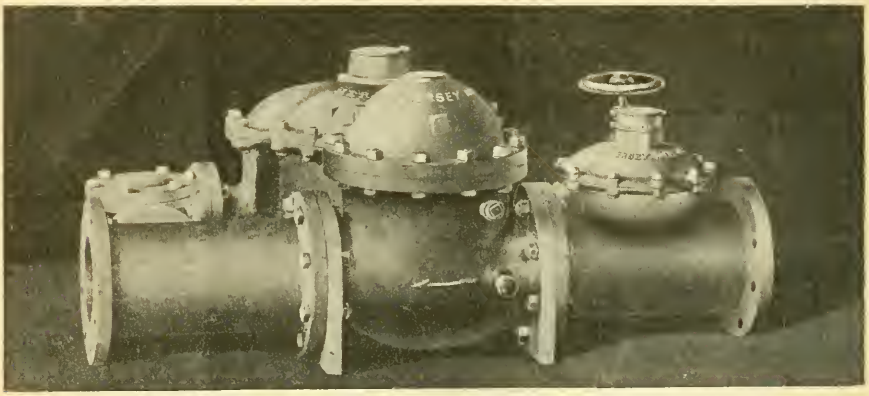

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ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. MARCH 1910. No. 40

ANNUAL MEETING, MARCH 16, 1910.

The annual meeting of the Boston Society of Civil Engineers will be held at the Boston City Club, 9 Beacon Street, Boston, on Wednesday, March 16, 1910.

As previously announced the annual meeting this year will consist, as last year, of three principal features: a business meeting at noon, the annual dinner in the afternoon and the smoker in the evening.

PROGRAM.

Business Meeting.—The annual meeting required by the Constitution will be called to order at 12 o'clock M., in Rooms 4 and 5, on the third floor of the Club House.

BUSINESS.—To ballot on applications for membership.

To receive the annual reports of the Board of Government, of the Treasurer and of the Secretary.

To receive the annual reports of the several special committees.

To reappoint the several special committees.

Announcement of the result of letter-ballot for officers for the ensuing year.

Address of the retiring President.

Annual Dinner.—The 28th annual dinner will be served at 2.30 P. M., in the Auditorium on the fourth floor of the Club House.

The price of tickets for the dinner will be $2.00 per plate. Members are at liberty to invite guests to the dinner as usual.

At the conclusion of the dinner Past President John R. Freeman will give a description of the Los Angeles Aqueduct, which will be illustrated by lantern slides.

Smoker.—An informal smoker will be held in the Auditorium, beginning at 7 o'clock P. M. This feature proved last year to be one of the most enjoyable gatherings ever held by the Society, and fully realized the hope expressed by the committee, that it would "afford the members and their friends an opportunity to meet socially, to renew old acquaintances and to form new ones, to extend fraternal greetings to those who have recently joined us and above all to foster a spirit of good fellowship among us." The enthusiasm with which all present responded to this invitation was the main reason for the success of the occasion. This year it is proposed to carry this spirit of co-operation still farther and each member is asked to contribute his share towards the expenses of the smoker by purchasing a ticket, the price of which has been placed at one dollar.

The exercises will be as informal as last year; the music will be of the same character, a number of new songs will be heard, and the refreshments will equal in quality and quantity those of a year ago.

REGISTRATION, TICKETS AND BADGES.

Members and guests who attend any of the functions of the annual meeting will find it more convenient to go directly to the third floor of the Club House, where special coat rooms will be provided for the exclusive use of the Society.

The rooms on the third and fourth floors which have been assigned to the Society for the annual meeting are entirely apart from the rest of the Club House used by its members.

Rooms 4 and 5 will be used as the Society headquarters continuously throughout the day and evening.

Each member is requested to register on cards provided for the purpose immediately on his arrival and to secure a badge which will be a means of identification throughout the meeting. They are also requested to register any guest whom they may introduce and to procure for him a special guest badge.

Members are urged to purchase at the time of registration the

tickets they desire for the dinner and the smoker, as admission will be strictly by tickets for both members and guests.

The prices for tickets have been fixed as follows:

Dinner tickets	$2.00 each
Smoker tickets	1.00 each
Combination tickets for Dinner and Smoker	2.50 each

It is indispensable that the Committee be informed at as early date as possible how many will attend the several gatherings so that ample and satisfactory arrangements may be made. If a member finds that he can attend only the business meeting, it will help the Committee materially to know it in advance so that his badge may be prepared for him. The Committee therefore urges you most earnestly to fill out and mail the accompanying postal card as promptly as possible stating your intentions.

Tickets may be obtained by addressing the Secretary at any time after the receipt of this circular.

S. E. TINKHAM,
F. H. FAY,
F. I. WINSLOW,
Committee.

SPECIAL MEETING, MARCH 30, 1910.

A special meeting of the Society conducted by the Sanitary Section will be held at the Boston City Club on Wednesday evening, March 30, 1910, at 7.30 o'clock.

The subject for discussion will be Disposal of Garbage.

The meeting will be addressed by Col. William F. Morse, of New York, and the lantern will be used to illustrate his address.

Mr. Charles S. Wheelwright, C. E., of Providence, Mr. Willis C. Merrill, Supt., New England Sanitary Product Company, and others will take part in the discussion.

Further details will be given in a later notice.

APRIL MEETING OF THE SANITARY SECTION.

A special meeting of the Sanitary Section of the Boston Society of Civil Engineers will be held at the Boston City Club on April 13 at 7.30 o'clock. Mr. John H. Gregory will describe the new sewage disposal plant at Columbus, Ohio. The talk will be illustrated with lantern slides. Mr. Gregory, as will be remembered has had charge of the design of both the sewage and water purification plants for the city of Columbus. The meeting will be preceded by the usual dinner at 6 o'clock.

BINDING THE JOURNALS.

Members who wish the Secretary to attend to the binding of their numbers of the *Journal* are requested to send them to Room 715, Tremont Temple, Boston, before April 1st.

Arrangements have been made by which members can have the *two* volumes bound in *one* for 70 cents, or each volume bound separately for 40 cents each ; the style of binding to be the same and uniform with that of former years. Mark clearly which way it is desired the binding should be done.

CANDIDATES FOR MEMBERSHIP.

To be balloted on at meeting March 16, 1910.

As Members.

T. Morris Brown, Brookline, Mass. (b. 1869). B. A. at Johns Hopkins University, 1891; graduate student in electrical engineering at Johns Hopkins University, 1892; graduate student in electrical and mechanical engineering, M. I. T., 1893; shop work and drafting, Walker Co., Cleveland, O., 1894–1899; draftsman with Wellman Seaver Engineering Co., Cleveland, 1899–1900; electrical engineer, Brown Hoisting Machinery Co., Cleveland, 1900–1905; engineering salesman, Ingersoll-Rand Co., at Cleveland, O. and St. Louis, Mo., 1905–1909; engineering salesman, Taylor Iron & Steel Co., 100 Broadway, N. Y. (factory at High Bridge. N. J.), since Nov. 15, 1909; member, Engineers' Club of St. Louis, Recommended by Gaetano Lanza, F. H. Fay, E. F. Miller and Peter Schwamb.

Frederic Kent Lawrence, Boston, Mass. (b. 1884). Attended Brown University, 1902–1903; from 1904 to December, 1906. draftsman for Berlin Construction Company, Berlin, Conn.; December, 1906, to June, 1907, draftsman and checker for Milliken Bros., New York; June to November, 1907, draftsman and checker for Levering & Garrigues Co., New York; July to December, 1908, assistant engineer, Boston Elevated Railway Co.; December, 1908, to May, 1909, draftsman and checker for New England Structural Co.; May, 1909, to date assistant engineer, Boston Elevated Railway Company, Department Elevated and Subway Construction. Recommended by Daniel Scowler, Jr., H. C. Hartwell, C. T. Fernald and L. S. Cowles.

Edward Guild Lee, Portland, Me. (b. 1885). Graduated from Civil Engineering Department of Massachusetts Institute of Technology, 1907. Rodman, notekeeper and transitman, summer of 1903 for R. C. Allen, at Manchester, Mass. and A. T. Palmer of Boston; transitman for Mr. Cutter of Wakefield, summer of 1904; notekeeper and transitman for Massachusetts Harbor and Land Commission on town boundary work, summer of 1906; assistant hydraulic engineer, New England Office, S. Morgan Smith Co., York, Pa., May, 1907, to January, 1910; and now engaged as engineer with Sawyer and Moulton, Portland, Me. Recommended by H. L. Coburn, Dwight Porter, H. K. Barrows and C. B. Breed.

Charles Bernard McNally, Boston, Mass. (b. 1876). Graduate of public schools of Marlboro, Mass.; from July, 1896, to March, 1906, assistant to James F. Bigelow, City Engineer, Marlboro, Mass.; from March, 1906, to January, 1907, with F. A. Barbour, sanitary and hydraulic engineer, Boston; January, 1907, to March, 1907, assistant to R. E. Cairns, city engineer, Waterbury, Conn.; March, 1907, to date with Boston Elevated Railway Company, Elevated and Subway Construction as assistant engineer. Recommended by H. C. Hartwell, F. A. Barbour, G. A. Kimball and L. S. Cowles.

Henry Walter Routenberg, Keene, N. H. (b. 1885). Was educated at Sheffield Scientific School of Yale University, taking the civil engineering course and graduated with the degree of Ph. B.; since graduation has been on the engineering force of the Boston Elevated Railway Co.; at present on the Cambridge Subway. Recommended by G. A. Kimball, E. E. Albee, W. T. Wiley and F. H. Carter.

Ralph Edmund Smith, Lynn, Mass. (b. 1888). Educated in the public schools of Lynn, Mass.; from 1903 to 1904 rodman and 1904 to present time transitman for city engineer of Lynn, Mass., on work connected with sewer department, street lines and grades and assessors plans. Recommended by G. I. Leland, E. M. Trefethen, C. B. Breed and H. K. Barrows.

Louis P. Steele, Jr., Boston, Mass. (b. 1886). Graduate of Rindge Manual Training School, 1901 and one year at Cornell University; employed by City of Cambridge in 1903; with Metropolitan Sewerage Works, 1904–1906; with Marx & Windsor, Havana, six months; with Charles A. Haskin on compressed air work in Louisville, Ky., for six months, and at present employed by Boston Elevated Railway Co. as a transitman. Recommended by F. H. Carter, G. A. Kimball, E. E. Albee and L. S. Cowles.

Reynold H. Sutherland, Lynn, Mass. (b. 1866). Graduate of School of Mechanic Arts, Massachusetts Institute of Technology, 1886; worked on structural designing and draughting with Boston Bridge Works, 1887–1889, and G. W. & F. Smith Iron Co., 1901–1903; 1904 to present time with the Lynn Water Works as an assistant to the superintendent; since June, 1908, head of engineering and draughting department. Recommended by J. R. Worcester, G. I. Leland, E. M. Trefethen and E. F. Dwelley.

Edward Wright, Jr., Lawrence, Mass. (b. 1884). Summer work in civil engineering office in Worcester two summers; course at Lowell Textile School; partial course at Worcester Polytechnic Institute; assistant to engineer in charge of outside construction, Arlington Mills, Lawrence, Mass.; in draughting room American Woolen Co., Lawrence, Mass., and American Machine Co., Pawtucket, R. I.; at present assistant engineer Department, Massachusetts Board of Health. Recommended by X. H. Goodnough, W. S. Johnson, H. P. Wilson and R. M. Whittet.

APPLICATIONS FOR MEMBERSHIP.

The following applications for membership have been received and are now before the Board of Government for approval. Members having information which will assist the government in its consideration of these applications are requested to communicate at once with any member of the Board. Communications will be regarded as confidential and for the use of the Board alone.

As Members.

Chester Salisbury Allen, Boston, Mass. (b. 1881). Special course in Civil Engineering, Sept. 1900—June 1903; Student of Bridge Engineering Cornell University, summer 1905; travelling, June 1903—May, 1904. Structural draftsman, estimator and designing engineer, Norcross Bros. Co., Worcester, Mass., May 1904—Sept. 1907; resident engineer for United Fruit Co., Bocas del Toro, Panama on construction of reinforced concrete wharf, warehouse, trestle and storage reservoir, Sept. 1907—Nov. 1908;

assistant engineer to Sanford E. Thompson, Newton Highlands, Mass., Nov. 1908—June 1909; engineer of construction, Holemenann Hospital buildings, Buffalo, N. Y., June 1909—Jan. 1910. Concrete engineer, Lockwood, Greene & Co., Mill Engineers and architects, Boston, Mass., Jan. 1910 to date. Recommended by G. H. Brazer, J. R. Worcester, S. E. Thompson, C. A. Allen and F. E. Shedd.

Charles Leonard Brown, West Somerville, Mass. (b. 1867). Took special course in Mining Engineering, class 1889, Mass. Inst. of Technology; chainman U. P. R. R., Colorado, Nov. 1889—May '90; assistant mining engineer, Minnesota Iron Co., Soudan, Minn., May 1890—'91; assistant with Lloyd and Lacy, Mining Engineers, Aspen, Colo., July 1891—Feb. '92; U. S. Deputy Mineral Surveyor, Aspen, March 1892—June '94 and Pittsin, Colo. Oct. 1894—May '02; May '09—Oct. '09; resident engineer, Mass. Highway Commission, May '02—July '07 and May '09 to Oct. '09; inspector on construction, Boston Transit Commission, July '07—Dec. '08; Asst. Engineer, Boston Transit Commission, Oct. '09 to date. Recommended by W. W. Davis, E. S. Davis, G. D. Emerson and R. A. Shailer.

Alfred Oliver Doane, Newton, Mass. (b. 1862). Graduate, mining course, Mass. Inst. of Technology, 1884. Travelling and private assistant to Prof. Niles of Geological Dept., 1884—85; chemical manufacturing work in connection with wood pulp industry, 1885—86; engineering department city of Newton, 1886—96; 1896 to date, assistant engineer in Engineering Dept. and division engineer, Metropolitan Water & Sewerage Board. Recommended by Dexter Brackett, Charles W. Sherman, William E. Foss and George E. Howe.

Harry Reed Draper, Ayer, Mass. (b. 1884). Attended Mass. Institute of Technology for four and one-half years from Sept. 1903; Rodman with Charles River Basin Commission June, 1909 to Sept. 1909; instrumentman Boston Elevated Railway Sept., 1909 to present time. Recommended by Ernest R. Kimball, John M. Ferguson, George A. Kimball and C. Frank Allen.

Frederick Charles Hubert Eichorn, Boston, Mass. (b. 1877). Graduated Fryes Probate School, 1897, and from Lawrence Scientific School, Department of Civil Engineering in 1901, receiving degree of B.S.; year of 1902, spent in the Graduate School of Harvard College specializing in mining engineering. 1902–1903, on Engineering staff of the Chicago & North Western Railway; 1903–1906, with Charles River Basin Commission in charge of party on surveys, triangulation and construction work; in 1906 was sent to San Francisco by the Boston Society of Architects and was also Assistant Engineer, at Chico, Cal.; 1907 with the Boston Sewer Department; also with Monks & Johnson, Architects, as engineer inspector on concrete coal pockets; 1907–1909 with A. H. Eichorn in general contracting; August, 1909, to the present time with Commission of Sewerage, Louisville, Ky., as senior inspector on construction. Recommended by Hiram A. Miller, John L. Howard, Ira N. Hollis and Lewis J. Johnson.

Charles Freed, Cambridge, Mass. (b. 1886). Graduate from Civil Engineering Department, Mass. Inst. of Technology, 1909. He is now with the Warren Bros. Co., as assistant in its laboratory for the testing of road material. Recommended by Dwight Porter, C. Frank Allen, Henry B. Alvord and Arthur G. Robbins.

James Banks Flaws, Medford, Mass. (b. 1882). Graduated from Newburyport High School, 1902; assisted land surveyor at Amesbury, Mass. on surveys and building of sewers and a reservoir during the summer of 1900 and 1901; began work as rodman, Boston Transit Commission in August 1902. Since then has worked in their office two years as draughstman and the other five years as transitman and head of line and grade party. At present, is inspecting the construction of the Beacon Hill Tunnel. Recommended by W. W. Davis, G. D. Emerson, E. S. Davis and L. L. Street.

George Arthur Sampson, Cambridge, Mass., (b. 1880). Graduated from Dartmouth College in June, 1901, with the degree of B. S. and from Thayer School of Civil Engineering April, 1903, with degree of C. E., September, 1903 to June, 1904, instructor at Mass. Institute of Technology; April, 1901 to September, 1902, and April, 1903 to September, 1903, Assistant Engineer to Cheney Bros., So. Manchester, Conn., June, 1904 to December, 1904, Resident Engineer on construction at Lake Kushagua, N. Y.; December, 1904 to May, 1905, and December, 1905 to May, 1906, Assistant Engineer to Robert Spurr Weston, Boston, Mass., May, 1905 to December, 1905, Assistant Engineer, Kennebec water district; May, 1906 to September, 1908, Assistant Engineer, U. S. R. S., Belle Fourche, So. Dakota, and at present Assistant Engineer with William Wheeler, Boston, Mass. Recommended by Robert Spurr Weston, Frank C. Kimball, Charles W. Sherman and William T. Barnes.

David Sutton, Dorchester, Mass., (b. 1880). Received degree B. S., Earlham College, 1901, and degree of S. B. Mass. Institute of Technology, 1904; with Canadian Bridge Co., as draughtsman January, 1905 to October. 1905; with French and Bryant, Civil Engineers, Brookline, Mass., April, 1907 to the present time. Recommended by Alexis H. French, Henry A. Varney, Frederick A. Leavitt and Russell H. Whiting.

MINUTES OF MEETINGS.

FEBRUARY MEETING OF THE SOCIETY.

Boston, Feb. 16, 1910. A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.45 p. m. o'clock. President George B. Francis in the chair; 145 members and visitors present, including ladies.

The record of the January meeting, as printed in the *Bulletin*, was approved.

Messrs. William A. Cobb, Samuel P. Coffin, William J. Fielding, Clarence B. Humphrey and Leroy D. Peavey were elected members and Mr. Theodore L. Keppler an associate of the Society.

On motion of Prof. Breed, the thanks of the Society were voted, to the American Waltham Watch Company; to Mr. J. W. Burkes, the General Superintendent, and C. J. Olney, Jr., the Purchasing Agent of that Company; and to the Boston & Maine Railroad Company, for courtesies extended to members on the occasion of the visit to the factory of the Watch Company, at Waltham.

Prof. Sanborn brought to the attention of the Society the desirability of making arrangements with the officials of the Boston Public Library by which the engineering books in the Library will be more accessible.

Mr. Herman K. Higgins then gave an illustrated talk entitled, "Progress at Panama."

Adjourned.

S. E. Tinkham, *Secretary.*

MARCH MEETING OF THE SANITARY SECTION.

The annual meeting of the Sanitary Section of the Boston Society of Civil Engineers was held at the Boston City Club on March 2, at 7.30 o'clock.

Mr. G. Frank Kemp was elected a member of the Section. Reports of the Executive Committee and the Committees on "Rainfall and Run-off," "Collection and Tabulation of Sewerage Statistics," and "Uniform Specifications for Vitrified Sewer Pipe" were read and placed on file. The three special committees of the Section were continued. The following officers were elected for the coming year:

Chairman, Robert Spurr Weston.
Vice-Chairman, Leonard P. Kinnicutt.
Clerk, Harold K. Barrows.

Additional members of the Executive Committee, Frank A. Barbour, Stephen deM. Gage, John L. Howard.

Dr. George A. Soper, Chairman of the Metropolitan Sewerage Commission, New York City, gave an interesting lecture on the subject of air contaminatian, which was illustrated with lantern slides and discussedby several members. Forty-three members and guests were present.

ROBERT SPURR WESTON, *Clerk.*

LIBRARY NOTES.

BOOK REVIEWS.

A Treatise on Concrete for Railroad Engineers and Contractors. Published by The Atlas Portland Cement Co., 30 Broad St., New York City. Price $1.00.

This title is given a very interesting book of 228 pages, profusely illustrated, published by the Atlas Portland Cement Co., to give a few accomplishments in railroad engineering performed with concrete. It illustrates every type of masonry structure which a railroad has occasion to build: small culverts, arch bridges, piers for the carrying of steel structures, fence posts, telegraph poles, concrete sleepers, tunnels, buildings of all descriptions from the most ornate railroad terminal stations to the plainest of service buildings. In between are to be found grain elevators, storage warehouses, car shops, roundhouses, coalpockets and the like.

Interspersed throughout the book is exact information as to sizes and dimensions of members, amount and method of reinforcements, thickness of slabs, proportions of materials, etc., so that a general railroad engineer without special training in reinforced concrete can easily find precedent for any work he wishes to do and assistance in designing it that is really worth his while. I would recommend it not only to railroad engineers but to any engineers having a similar type of work to do.

Were it not for the occasional mention of ATLAS Portland cement instead of merely a statement of Portland cement, no one would suspect that this treatise was written in the interest of any particular manufacturer. The Company who issues such high-grade engineering books, which only advertise themselves as an incident to advertising the whole industry which consumes Portland cement, is doing a great good to the industry and is entitled

to very high commendation. The composition of the book is very readable, the type is large and clear, and the cuts are of unusually good quality.

LEONARD C. WASON.

Concrete in Highway Construction. Published by the Atlas Portland Cement Co., 30 Broad Street, New York City. Price $1.00.

This is a book of 136 pages published by the Atlas Portland Cement Co., and is in effect what its title page indicates, a text book for highway engineers and supervisors. Careful perusal fails to disclose any error in statement of facts, or anything left unsaid which a highway engineer really needs to know in regard to construction of highways in all their features: sidewalks, roadways, culverts, sewers, small and large bridges, and retaining walls. The whole ground is thoroughly covered, including cost data, data on mixing and placing of concrete, cuts giving dimensions of concrete and reinforcement, plans of forms for supporting bridges and culverts, in such concise and comprehensive manner that any one with a fair knowledge and experience in construction can use it as a handbook with perfect confidence and with assurance that he will not be led into any mistakes. The text is clear in statements and the interest is sustained from beginning to end.

The reader becomes so interested in the text that he forgets the book was prepared by a manufacturer for advertising purposes. This is the highest type of advertising, a form which gives genuine information, which is a help to the entire industry with only incidental help to the author The Atlas Company is entitled to very great commendation for such painstaking and high-grade work in the preparation and issue of such a book.

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RECENT ADDITIONS TO THE LIBRARY.

U. S. Govt. Reports.

Influence of forests on climate and on flood, Willis L. Moore.

State Reports.

New York Public Service Commission, Annual Report for 1908—4 volumes.

City and Town Reports.

Taunton, Mass., Annual Report of Water Commissioners for 1909.

Miscellaneous.

Tests of tile-roof furnaces under a water-tube boiler, J. M. Snodgrass.

Approximate Cost of Mill Buildings, Charles T. Main.

Refuse Disposal by High Temperature Destructors, W. F. Morse.

Engineering Index, Annual for 1909.

Electro-thermal and Electrolytical Industries, Edgar A. Ashcroft.

Hydro-electric Plants, R. C. Beardsley.

Switch-boards, Wm. Baxter.

The Alternating Current Transformer, T. G. Baum.

Mathematical Hand-book, Edwin P. Seaver.

Corrosion of Iron and Steel, Alfred P. Lang.

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RESIGNATION.

J. ALBERT HOLMES,	February 2nd, 1910.

NEW ENGINEERING WORK.

Commonwealth of Massachusetts.— Metropolitan Park Commission.—No construction work is in progress at the present time and no new work is contemplated except the completion of unfinished contracts of last year.

Harbor and Land Commissioners.—Work is in progress at South Boston Flats, dredging a berth on easterly side of Commonwealth Pier and between the pier and the main ship channel.

Charles River Basin Commission.— *Work in Progress at the Dam and Lock.*—A permanent fence on the down-stream side of the roadway is now nearly all erected and the fence at the sluices on the up-stream side of the roadway, and also the wing walls, are now being erected. Work has been started on the construction of an open shelter just west of the upper end of the Lock. This building is 100 feet long by 30 feet wide, with a granolithic floor and a roof supported by steel columns about 15 feet high.

On the Boston Embankment the contracts have just been let for furnishing lamp-posts for lighting the embankment from Cambridge Bridge to Charlesgate West.

At Watertown the work of grading the fill on the banks of the river below Galen Street Bridge is in progress and the work above the bridge is now nearly completed.

Boston Transit Commission.

The open cut portion, about 300 feet in length, of the Tunnel under Beacon Hill, has been completed. Tunneling is proceeding from the shaft at the intersection of Grove and Phillips streets and the shield will shortly be put in operation.

Boston Elevated Railway Company.— Cambridge Main Street Subway.— At present on Main street the South side of Kendall square station is completed and the North side nearly so, leaving a core to be removed. About 450 feet of the section between Sixth street and Pioneer street has been completed and the derrick is now working at Pioneer on the last part of the section. Of the section between B. & A. R. R. crossing and Sixth street about 275 feet is finished. The B. &. A. R. R. tracks have been replaced in their proper location and are carried on girders resting on pile foundation, while the subway excavation is progressing underneath. A section of arch roof subway west of the R. R. crossing is finished and the three cableways from Albany street to Austin street are still in operation. The westerly one has finished one 400-foot stretch and has been moved ahead. A new opening has been started at Columbia street. At Massachusetts avenue and Brookline street excavation has been started for a siphon of the City sewer.

The Dana Hill Tunnel has been driven westward to near Putnam square and is now close to the apartment house at that point, the reinforcement being varied to meet the conditions.

On Massachusetts avenue at Remington street a ventilation chamber has been started and changes in City sewers made. The cableway between Arrow street and Quincy square has about half finished its section and work on inbound track and south wall of Harvard square station between Dunster street and Linden street is well under way. Excavation for siphon of Metropolitan sewer at Plympton street is being carried on. Small sections of surface car tracks of the Harvard square station have been completed and others are under construction on Massachusetts avenue and Brattle square.

Elevated and Subway Construction.— Work is in progress on the four remaining foundations for the Charles River Bridge of the E. Cambridge Ex.

Three of these piers are on the East Cambridge side of the river and on land of the B. & M. R. R. Co. near Prison Point street and the fourth is on the Boston side of the river, and in the roadway of the old temporary bridge.

Piers are of concrete, resting on piles, from grade 104 to about 117, and above this point are faced with granite to match the work already completed.

Several foundations are to be built for the elevated steel structure in the freight yard of the B. & M. R. R. west of Prison Point street.

City of Boston.–Engineering Department.–*Berkeley Street Bridge.* The span over the Boston & Albany R. R. built in 1891, is another interesting example of the corrosion of steel by locomotive gases confined under a tight floor. In the floor beams, the outstanding legs of the flange angles, originally $\frac{1}{2}$ inch thick, are now at many points $\frac{1}{8}$ inch or $\frac{1}{4}$ inch thick; lately under the modern traffic, the stresses must have frequently nearly reached the elastic limit of the metal. Angles serving as seats for the wooden stringers have in some cases lost the entire outstanding leg. Where a thick mass of plates and angles is riveted together, as in a girder flange, the percentage loss of section is of course not so large. In the extension of the Bridge across the N. Y. N. H. & H. R. R. built in 1899, the corrosion has not yet gone so far.

The two spans are now being repaired with the expectation that they will serve ten or fifteen years longer. Corrosion on the girder webs below the floor is to be stopped by a quarter-inch plate riveted to each face. A complete set of new and stronger floor beams if provided, not painted, but covered all over with an asphalt coating $\frac{1}{10}$ inch thick. To have enclosed the steel in concrete would have loaded the old girders more than was thought advisable. When finished, the bridge will safely carry the heaviest trolley cars now used in Boston.

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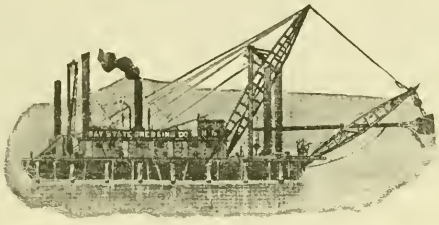

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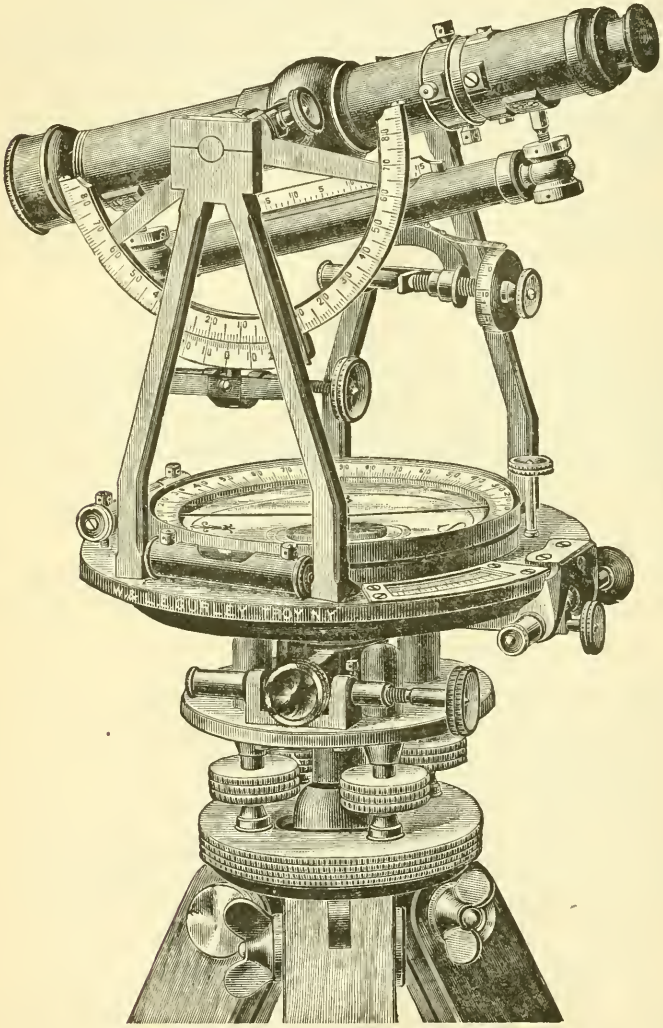

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BOSTON SOCIETY OF CIVIL ENGINEERS.
ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. APRIL 1910 No. 41

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, April 20, 1910, at 7.30 P. M., in

LORIMER HALL, TREMONT TEMPLE, BOSTON.

Mr. Frederick H. Newell, Director of the United States Reclamation Service will speak on the "Engineering Work of the Reclamation Service." The talk will be illustrated by lantern slides.

The members of the American Society of Mechanical Engineers and of the Boston Section of the American Institute of Electrical Engineers have been invited to co-operate with us in this meeting.

BUSINESS OF THE MEETING: To ballot on the applications for membership as announced in this Bulletin.

To consider the report of the Board of Government submitting resolutions regarding the work of the Corps of Engineers, U. S. Army. (The resolutions are printed in this Bulletin.)

S. E. TINKHAM, *Secretary.*

EXCURSION, APRIL 20, 1910.

There will be an excursion of the Boston Society of Civil Engineers to the works of the American Sugar Refinery on Granite street near First street, South Boston, Mass., on the afternoon of April 20, 1910. Members are requested to be at the office door of the Company promptly at 2 P. M. Take any Dorchester avenue car and get off at First street, South Boston.

Excursion Committee.

JOINT MEETINGS OF ENGINEERS IN BOSTON.

April 27, 1910:—A meeting conducted by the American Society of Mechanical Engineers with the co-operation of the American Institute of Electrical Engineers and this Society will be held in the auditorium of the Edison Building, 39 Boylston street, at 8 o'clock P. M. Prof. Charles M. Allen of the Worcester Polytechnic Institute will read a paper entitled "Testing of Water Wheels After Installation".

May 18, 1910:—A meeting conducted by the Boston Section of the American Institute of Electrical Engineers, with the co-operation of the American Society of Mechanical Engineers, and this Society will be held in a hall to be announced later. Mr. L. B. Stillwell, President of the American Institute of Electrical Engineers will read a paper on conservation matters.

The regular May meeting of this Society will be held at the same time and place.

MAY MEETING OF THE SANITARY SECTION.

Owing to the conflict in dates of the special meeting of the Sanitary Section of the Boston Society of Civil Engineers that was to be held on April 13th, with the monthly meeting of the New England Water Works Association at Hartford, it has been decided to postpone the former meeting until May 4.

On May 4, Mr. John H. Gregory will describe the new sewage disposal plant at Columbus, Ohio, illustrating his talk with lantern slides. Mr. Gregory was in charge of the design of both the sewage and water purification plants for the city of Columbus.

The meeting will be held at the Boston City Club at 7.30 o'clock and will be preceded by dinner at 6 o'clock, as usual.

REVISION OF CONSTITUTION AND BY-LAWS.

The Committee on Revision of the Constitution and By-Laws authorized by vote of the Society at the annual meeting, will hold a meeting at the Society's Rooms, 715 Tremont Temple, on Friday evening, April 29, 1910, at 7.30 o'clock.

The Committee invites all who have changes or amendments to the Constitution or By-Laws to suggest, to present them at this meeting. Those who cannot attend the meeting are urged to submit their suggestions in writing to the Committee not later than May 1. Communications may be sent to the Committee in care of the Secretary of the Society.

RESOLUTIONS IN RELATION TO THE WORK OF THE CORPS OF ENGINEERS U.S. ARMY.

At the annual meeting the Society referred to the Board of Government the resolutions adopted by the Engineers' Club of St. Louis in relation to certain legislation now pending in Congress regarding the work of the Corps of Engineers of the United States Army.

The Board has carefully considered these resolutions and has also ascertained what action has been taken by the American Society of Civil Engineers in this matter. As a result of its consideration the Board recommends the adoption of the following resolutions, which are in substantial accord with those prepared by a committee of engineers and approved by the Board of Direction of the American Society of Civil Engineers.

Whereas: The river and harbor work of our country has grown to such proportions and importance as to necessitate an enlargement of the corps of engineers, and

Whereas: A bill, H.R. 7117, introduced April 12, 1909, has been recently reported by the Committee on Rivers and Harbors of the House of Representatives, providing for an increase in the number of officers comprising the Corps of Engineers of the U.S. Army and defining the conditions under which civilian engineers may become eligible for appointment, and

Whereas: The best interest of the government would be served by placing the engineering work in charge of the most competent engineers available, and

Whereas: We recognize the excellent record of the corps of engineers for faithful and devoted service in connection with public works, we also realize the increasing importance of the civil work under their charge, the development of engineering education and practice in our country during the past twenty-five years and the increasing number of civil engineers who have been specially trained to direct large public undertakings;

Therefore, be it resolved,

First. That the Boston Society of Civil Engineers favors and urges the passage of such laws by Congress as will facilitate the assignment of trained civil engineers to direct civil engineering work conducted by the Corps of Engineers.

Second. That such engineers should have the same relative

rank and pay as officers of the Corps Engineer of the U. S. A. holding similar assignments.

Third. That neither assistant engineers nor officers of the Corps of Engineers shall be detailed in charge of river and harbor districts or divisions until they have had at least five years experience on works of engineering construction.

Fourth. That the opportunity for the promotion of civil engineers to positions of authority should be widened.

Fifth. That copies of these resolutions be sent to the Committee on Military Affairs, to the Commitiee on Rivers and Harbors of the House of Representatives, the corresponding committees of the Senate, and the senators and representatives from the New England states, and the chief of engineers of the U. S. Army.

CANDIDATES FOR MEMBERSHIP.

To be balloted on at meeting April 20, 1910.

As Members.

Chester Salisbury Allen, Boston, Mass. (b. 1881). Special course in Civil Engineering, Sept. 1900—June 1903; Student of Bridge Engineering Cornell University, summer 1905; travelling, June 1903—May, 1904. Structural draftsman, estimator and designing engineer, Norcross Bros. Co., Worcester, Mass., May 1904—Sept. 1907; resident engineer for United Fruit Co., Bocas del Toro, Panama on construction of reinforced concrete wharf, warehouse, trestle and storage reservoir, Sept. 1907—Nov. 1908; assistant engineer to Sanford E. Thompson, Newton Highlands, Mass. Nov. 1908—June 1909; engineer of construction, Holemenann Hospital buildings, Buffalo, N. Y., June 1909—Jan. 1910. Concrete engineer, Lockwood, Greene & Co., Mill Engineers and architects, Boston, Mass., Jan. 1910 to date. Recommended by G. H. Brazer, J. R. Worcester, S. E. Thompson, C. A. Allen and F. E. Shedd.

Charles Leonard Brown, West Somerville, Mass. (b. 1867). Took special course in Mining Engineering, class 1889, Mass. Inst. of Technology; chainman U. P. R. R., Colorado, Nov. 1889—May '90; assistant mining engineer, Minnesota Iron Co., Soudan, Minn., May 1890—'91; assistant with Lloyd and Lacy, Mining Engineers, Aspen, Colo., July 1891—Feb. '92; U. S. Deputy Mineral Surveyor, Aspen, March 1892—June '94 and Pittsin, Colo, Oct. 1894—May '02; May '09—Oct. '09; resident engineer, Mass. Highway Commission, May '02—July '07 and May '09 to Oct. '09; inspector on construction, Boston Transit Commission, July '07—Dec. '08; Asst. Engineer, Boston Transit Commission, Oct. '09 to date. Recommended by W. W. Davis, E. S. Davis, G. D. Emerson and R. A. Shailer.

Alfred Oliver Doane, Newton, Mass. (b. 1862). Graduate, mining course, Mass. Inst. of Technology, 1884. Travelling and private assistant to Prof. Niles of Geological Dept., 1884—85; chemical manufacturing work in connection with wood pulp industry, 1885—86; engineering department city of Newton, 1886—96; 1896 to date, assistant engineer in Engineering Dept. and division engineer, Metropolitan Water & Sewerage Board. Recommended by Dexter Brackett, Charles W. Sherman, William E. Foss and George E. Howe.

Harry Reed Draper, Ayer, Mass. (b. 1884). Attended Mass. Institute of Technology for four and one-half years from Sept. 1903; Rodman with Charles River Basin Commission June, 1909 to Sept. 1909; instrumentman Boston Elevated Railway Sept., 1909 to present time. Recommended by Ernest R. Kimball, John M. Ferguson, George A. Kimball and C. Frank Allen.

Frederick Charles Hubert Eichorn, Boston, Mass. (b. 1877). Graduated Fryes Probate School, 1897, and from Lawrence Scientific School, Department of Civil Engineering in 1901, receiving degree of B.S.; year of 1902, spent in the Graduate School of Harvard College specializing in mining engineering. 1902–1903, on Engineering staff of the Chicago & North Western Railway; 1903–1906, with Charles River Basin Commission in charge of party on surveys, triangulation and construction work; in 1906 was sent to San Francisco by the Boston Society of Architects and was also Assistant Engineer, at Chico, Cal.; 1907 with the Boston Sewer Department; also with Monks & Johnson, Architects, as engineer inspector on concrete coal pockets; 1907–1909 with A. H. Eichorn in general contracting; August, 1909, to the present time with Commission of Sewerage, Louisville, Ky., as senior inspector on construction. Recommended by Hiram A. Miller, John L. Howard, Ira N. Hollis and Lewis J. Johnson.

Charles Freed, Cambridge, Mass. (b. 1886). Graduate from Civil Engineering Department, Mass. Inst. of Technology, 1909. He is now with the Warren Bros. Co., as assistant in its laboratory for the testing of road material. Recommended by Dwight Porter, C. Frank Allen, Henry B. Alvord and Arthur G. Robbins.

James Banks Flaws, Medford, Mass. (b. 1882). Graduated from Newburyport High School, 1902; assisted land surveyor at Amesbury, Mass. on surveys and building of sewers and a reservoir during the summer of 1900 and 1901; began work as rodman, Boston Transit Commission in August 1902. Since then has worked in their office two years as draughstman and the other five years as transitman and head of line and grade party. At present, is inspecting the construction of the Beacon Hill Tunnel. Recommended by W. W. Davis, G. D. Emerson, E. S. Davis and L. L. Street.

George Arthur Sampson, Cambridge, Mass., (b. 1880). Graduated from Dartmouth College in June, 1901, with the degree of B. S. and from Thayer School of Civil Engineering April, 1903, with degree of C. E.,

September, 1903 to June, 1904, instructor at Mass. Institute of Technology; April, 1901 to September, 1902, and April, 1903 to September, 1903, Assistant Engineer to Cheney Bros., So. Manchester, Conn., June, 1904 to December, 1904, Resident Engineer on construction at Lake Kushagua, N. Y.; December, 1904 to May, 1905, and December, 1905 to May, 1906, Assistant Engineer to Robert Spurr Weston, Boston, Mass., May, 1905 to December, 1905, Assistant Engineer, Kennebec water district; May, 1906 to September, 1908, Assistant Engineer, U. S. R. S., Belle Fourche, So. Dakota, and at present Assistant Engineer with William Wheeler, Boston, Mass. Recommended by Robert Spurr Weston, Frank C. Kimball, Charles W. Sherman and William T. Barnes.

David Sutton, Dorchester, Mass., (b. 1880). Received degree B. S., Earlham College, 1901, and degree of S. B. Mass. Institute of Technology, 1904; with Canadian Bridge Co., as draughtsman January, 1905 to October. 1905; with French and Bryant, Civil Engineers, Brookline, Mass., April, 1907 to the present time. Recommended by Alexis H. French, Henry A. Varney, Frederick A. Leavitt and Russell H. Whiting.

APPLICATIONS FOR MEMBERSHIP.

The following applications for membership have been received and are now before the Board of Government for approval. Members having information which will assist the government in its consideration of these applications are requested to communicate at once with any member of the Board. Communications will be regarded as confidential and for the use of the Board alone.

As Members.

John Walter Bickford, East Boston, Mass. (b. 1886.) In the employ of the Boston Elevated Railway Company, Department of Elevated and Subway Construction, since March, 1904, as office boy, rodman and transitman. At present transitman on the Cambridge Main Street Subway, Recommended by G. A. Kimball, E. E. Albee, H. E. Whiting and H. B. Alvord.

Frank H. Dillaby, Somerville, Mass. (b. 1875.) Graduate, mechanical engineering course, Norwich (Conn) Academy. Spent nine years in architectural work; with Roebling Construction Company nine years, and now the New England Manager of that company. Recommended by J. R. Worcester, E. E. Savory, W. M. Bailey and C. J. Hogue.

William Joshua Dotten, Winchester, Mass. (b. 1872.) Graduate of Public Schools. Took International Correspondence Course, Scranton, Penn. Summers of '90 and '91, with Percy M. Blake; '92 and '93, with E. Worthington; '94 and part of '95 with John R. Freeman; '95

until April, 1905, again with E. Worthington. From April, 1905 to date, Assistant Town Engineer, Winchester, Mass. Recommended by C. H. Gannett, R. W. Pond, C. T. Main and D. W. Pratt.

Joseph Driscoll, Brookline, Mass. (b. 1873.) Graduate, Mass. Inst. of Technology, Civil Engineering Course, Class of 1896. From July, 1896, to November, 1897, with Boston Transit Commission, Section 6 of Subway; November, 1897, to May, 1899, City of Boston, Street Laying-Out Department of Sewerage Works; and from May, 1899, to date, junior member of firm of James Driscoll & Son, General Contractors. Recommended by H. F. Bryant, A. H. French, F. A. Leavitt and H. A. Varney.

Charles Henry Eglee, Brookline, Mass. (b. 1858). Prepared for Harvard College at The Flushing Institute, Flushing, Long Island, N. Y. Entered construction business at eighteen without college education; the following twenty-five years engaged in designing and constructing water works, principally in New England, as engineer and contractor; at present General Manager of the Ambursen Hydraulic Construction Company, engaged in designing and building concrete steel dams and in all other branches of hydro-electric and irrigation development. Recommended by J. R. Worcester, E. E. Savory, G. A. Kimball and A. H. French.

Howard Lovering Farwell, Boston, Mass. (b. 1886). Graduate, Mechanics Arts High School, Boston, in 1904–05, and also graduate, University of Maine, 1909. At present engaged as a transitman in the Engineering Department of the Boston & Maine Railroad. Recommended by J. P. Snow, F. B. Rowell, T. P. Perkins and R. H. Rich.

Raymond W. Ferris, Columbus, Ohio. (b. 1885.) Graduate, Mass. Institute of Technology, June, 1908, with degree of B. S. in department of civil engineering. Summer of 1908 employed in Engineering Department, Mass. State Board of Health, as assistant; October, 1908 to date in employ of Ohio State Board of Health, until February, 1910, as assistant in engineering department and now as assistant engineer. Recommended by Paul Hansen, A. E. Kimberly, W. S. Johnson and R. M. Whittet.

Hubert William Flaherty, Boston, Mass. (b. 1885). Mass. Inst. Technology 1904–1908. Four months transitman with B. R. & E. R. R., 1907; sewer survey, Adams, Mass., 1908; Charles River Dam, 1908: October, 1908 to present time Assistant Engineer with William S. Johnson, employed in constructing and designing water supplies, water purification and sewage disposal. Recommended by W. S. Johnson, X. H. Goodnough, Charles Saville and F. S. Bailey.

Leroy Porter Henderson, Beverly, Mass. (b. 1883). Student at Massachusetts Institute of Technology, Engineering Course, 1902 to 1906. Worked for John H. Proctor, Boston, Mass., in charge of concrete

construction. From Nov. 1906 to date, employed by the Charles River Basin Commission, in charge of surfacing of Sects. 3, 4 and 5 of Boston Embankment. Recommended by John N. Ferguson, Henry M. McCue, Arthur E. Tarbell and Roy C. Aiken.

Henry Maine Johnson, Boston, Mass. (b. 1888). Received education in the Boston Public Schools, graduating from the Boston English High School in June, 1906. In April, 1907, started engineering with French & Bryant, Brookline, Mass., working there about nine months. Since April, 1908 employed by the Boston Elevated Railway Company, Department of Elevated and Subway Construction on engineering work at Sullivan Square, Charlestown. Recommended by E. R. Kimball, W T. Wiley, H. F. Bryant and L. S. Cowles.

James Arthur Lockhart, Boston, Mass. (b. 1886.) Educated in Boston Public Schools. Since June, 1907, with Metcalf & Eddy, as draftsman and general assistant in both office and construction work. Recommended by H. P. Eddy, C. W. Sherman, W. T. Barnes and F. A. Marston.

Raymond Washington Parlin, Cambridge, Mass. (b. 1885). Took special course in sanitary engineering, 1903–08, Mass. Institute of Technology; assistant, engineering department, State Board of Health, summer 1906; surveying and in charge of construction, manufacturing waste disposal plant under W. S. Johnson, summer and fall, 1907; designing and resident engineer on Pepperell Water Works, 1908; general designing, construction and investigation on water works, sewers, disposal plants, under W. S. Johnson, 1909–10. Now Assistant Engineer with W. S. Johnson, Boston, Mass. Member, Sanitary Section. Recommended by G. F. Swain, W. S. Johnson, X. H. Goodnough and Charles Saville.

George Edmond Russell, Boston, Mass. (b. 1877). Graduate, Mass. Inst. Technology, 1900, with degree S. B. Assistant Instructor, Mass. Institute of Technology, 1900–01; structural engineer with American Car and Foundry Co., of New York, 1901–1904; instructor, Cornell University 1904–05; Assistant Professor, Civil Engineering, Mass. Institute of Technology 1907 to date. Recommended by Dwight Porter, H. K. Barrows, L. E. Moore and S. E. Tinkham.

James C. Scorgie, Cambridge, Mass. (b. 1850). Educated in Public Schools and Mechanic Institute, Aberdeen, Scotland; various special courses in engineering in United States. Draftsman on building construction, 1868–1871; office of Harbor Engineer, Aberdeen, Scotland, 1872–73; draftsman on building construction, Cambridge, Mass., 1873–1880; general office work under J. W. Lovering, C. E., Supt. Mt. Auburn Cemetery, Cambridge, Mass., 1880–85; surveyor, Mt. Auburn Cemetery, 1885–89; Asst. Supt. Mt. Auburn Cemetery, 1889–1895; and from 1895 to date, Supt. Mt. Auburn Cemetery. Recommended by L. M. Hastings, F. B. Sanborn, J. I. Tucker and J. F. Peterson.

George Paulus Soutar, Lynn, Mass. (b. 1889). Graduate, Lynn High School, 1905; took two years course in surveying at Boston Y. M. C. A. School. Rodman in City Engineer's Office, Lynn, Mass., 1907 to Jan'y, 1910; and at present instrumentman in City Engineer's Office, Lynn, Mass. Recommended by G. I. Leland, E. M. Trefethen, R. H. Sutherland and B. E. Ames.

Ralph Edwin Tarbett, Stoneham, Mass. (b. 1882). Graduate, Mass. Institute of Technology, Sanitary Engineering Course, 1905. Sept. 1905 — Aug., 1906, with Dr. Leonard P. Kinnicutt, of Worcester, Mass., as private assistant; August, 1906 — August, 1909, resident engineer and bacteriologist with the Knoxville Water Co., Knoxville, Tenn. At present assistant engineer with Robert Spurr Weston, Boston. Recommended by William Wheeler, H. P. Eddy, C. W. Sherman and R. S. Weston.

William Otis Wellington, Wollaston, Mass. (b. 1874.) Graduate, Worcester Polytechnic Institute, with degree S. B., 1895; August, 1895, to June, 1909, with the exception of one year, with Bosten Transit Commission as rodman, and as assistant engineer for the last six years. At present with Boston Elevated Railway Co., as Division Engineer in charge of Dana Hill Tunnel, Cambridge, Mass. Recommended by G. A. Kimball, L. L. Street, R. A. Shailer and S. E. Tinkham.

TOWN PLANNING.

The Boston Public Library has placed a collection of books and periodicals containing articles on "Town Planning" on an open shelf near the Codman Collection of Landscape Architecture in its Fine Arts Department where it will remain for reference until April 30.

BINDING THE JOURNALS.

Members who wish the Secretary to attend to the binding of their numbers of the *Journal* are requested to send them to Room 715, Tremont Temple, Boston, at once.

Arrangements have been made by which members can have the *two* volumes bound in *one* for 70 cents, or each volume bound separately for 40 cents each; the style of binding to be the same and uniform with that of former years. Mark clearly which way it is desired the binding should be done.

MINUTES OF MEETINGS.

ANNUAL MEETING OF THE SOCIETY.

Boston, March 16, 1910. — The annual meeting of the Boston Society of Civil Engineers was held at the Boston City Club, 9 Beacon Street, at 12 o'clock M., President George B. Francis in the chair.

The record of the last regular meeting, as printed in the March *Bulletin*, was approved.

The President appointed as tellers to canvass the ballots for officers to be elected at this meeting, Messrs. N. S. Brock and H. K. Higgins.

Messrs. T. Morris Brown, Frederic Kent Lawrence, Edward Guild Lee, Charles Bernard McNally, Henry Walter Routenburg, Ralph Edmund Smith, Lewis P. Steele, Jr., Reynold Henry Sutherland and Edward Wright, Jr., were elected members of the Society.

The Secretary read the annual report of the Board of Government and, on motion, it was accepted and placed on file.

The Secretary also read his annual report and, on motion, it was accepted and placed on file.

The Treasurer read his annual report and, on motion, it was accepted and placed on file.

Mr. Carter, for the Committee on Excursions, presented its annual report, which was accepted and placed on file.

The Librarian read the annual report of the Committee on the Library and, on motion, it was accepted and placed on file.

Mr. FitzGerald presented and read the joint report of the Board of Government and the Committee on Permanent Quarters. The report was accepted and placed on file.

Mr. Cowles presented a report of the Special Committee on Clubhouse, appointed by the Board of Government. The report was accepted and placed on file.

The Secretary read a communication from the Engineers' Club of St. Louis, enclosing resolutions adopted by that Club concerning pending legislation before Congress in relation to a Department of Public Works, and requesting this Society to consider the resolutions with a view to adoption of similar action. On motion of Mr. Sherman it was voted to refer the communication to the Board of Government, to report in print in the next *Bulletin* such action as it deemed best.

On motion duly made and seconded it was voted to refer to the Board of Government, with full powers, the question of appointing the special committees of the Society and the selection of the members thereof.

It was voted to appropriate the sum of $75 for the purchase of new reference and text books during the coming year.

On motion it was voted to request the Board of Government to appoint a committee on the revision of the By-Laws of the Society.

President Francis then delivered the following address:

The reports of the Board of Government and the several committees have informed the members of the current affairs of the Society.

There is not much to be said at this time which these reports do not disclose; nevertheless, there are a few matters which I will touch upon, which have been impressed upon me during my term of office.

I believe that it would be well for the Society to issue, at cost, engraved certificates of membership to such members as desire them; that the Constitution should embrace a provision for the compounding of annual dues; that a sum of money, say $50 or $100, should be set aside each year as a prize for the best descriptive paper furnished, in the hope that this incentive will improve and increase the papers submitted.

I believe that the annually increasing expense of the Society will eventually require an increase in the annual dues paid by members, and that the Constitution should soon be revised, providing for such increase to all present members, and for one or more classifications of members, particularly juniors, who might be admitted at the present rate of dues for members.

It might also be well to make the qualifications for membership substantially the same as is required for the national society, so that this Society may have equal rank in this respect to any other.

The increased income from dues to be applied eventually to a larger compensation of the Secretary, perhaps ultimately to a point where the whole time of this officer can be given to the requirements of the Society and, finally, to the publication of the transactions of the Society by itself.

I believe that a revision of the Constitution in these particulars will tend to increase the membership and the dignified standing of the Society, and these matters are suggested for the future consideration of the Society.

A year ago my predecessor in office, in his address at the annual meeting, called attention to a number of matters which he thought were

open to improvement and which might be summed up generally as follows:

That there appeared to be a disease in the Society that is "sometimes wrongly called 'dry rot'"; that there appeared to be a lack of sympathy between the older and younger members, also a "restiveness" on the part of the younger members; that the meetings were not made as attractive as they might be; that it is desirable to print the papers in advance of presentation; that there was not as much free offering of papers as desirable; that the method of selecting officers was open to criticism.

Believing that these criticisms were stated with a view to the good of the Society, and knowing that they resulted from a year's experience in the office of President, it became a natural duty of the new Board of Government to profit by this experience and these observations; consequently, much effort has been made to apply medicine to the disease, establish sympathy between members, secure more attractive meetings, print some papers in advance and lead the members on toward the free offering of papers.

A year's application of available medicine to the disease at least puts the Society in the position of a real patient I once knew who wrote his physician saying, "I have now taken your medicine for several months and I find myself no worse."

Personally, I think the Society is far from going out of business on account of any chronic disease. I have not observed any "lack" of sympathy between the older and the younger members. Whenever I have called on any member of the Society for aid in any direction, there has been a most cheerful assistance given. In the matter of nominating three candidates for each office, instead of one candidate as is done in other societies, I am inclined to believe that there is merit in giving the membership a choice, rather than having the nomination equivalent to an election.

There is restiveness among the members of the national society on this account. At any rate, this is not to my mind a very serious defect.

Perhaps I am not the best judge of whether the meetings during the past year have or have not been as attractive as we would like, but they have proved interesting to me and I have enjoyed being present even at considerable discomfort to myself in making the effort.

There has been no trouble in finding papers for all the time available and I feel under deep obligation to those non-resident members who have supported, so freely, my request for effort in this line. As a matter of fact, each member, resident or non-resident, who was appealed to has produced results, and there are papers yet to come from such appeals for which no time, at either formal or informal meetings, has yet been found.

As to the quality of the papers, it can perhaps be best answered by the statement that the attendance during the past year has been up to or above the general average and there has been considerable free discussion.

I believe that the Society is alive and progressive and am induced to make these remarks to counteract the effect of the remarks of my predecessor who, although having the good of the Society at heart and being sincere in his endeavor to improve it, drew a picture that was depressing.

His remarks have, nevertheless, resulted in an endeavor on my part to bring about, as far as my ability permitted, a point of turning toward a third brilliant chapter in the history of the Society, and in that respect his remarks may prove valuable.

Before completing my remarks I desire to offer strong encouragement to the Joint Committee on club house matters, which I hope will serve to increase their faith in a successful issue of any reasonable plan which they may finally adopt; and for this purpose, I propose to read an extract from the last annual report of the Secretary of the American Society of Civil Engineers found in the report of the annual meeting:

"It might be interesting to call attention to the facts shown in the

balance sheet. According to it, if we omit the items of furniture, publications on hand, and value of the library (on which it might be difficult to realize), the actual assets of the Society, which could be turned into cash, on December 31, 1909, were $354 619.51.

" In a circular issued by the Board of Direction, May 25, 1895, at the time the building of a new house was contemplated, the available assets at that time were stated to be $64 500.

" The present estimated value of the Society's property is believed to be extremely conservative, but nevertheless it appears that in less than fifteen years the assets of the Society have been increased by about $290 000."

I desire to thank those members of the Board of Government and committees who have supported me in all our endeavors to make the year a success.

On motion of Mr. FitzGerald the Board of Government were requested to consider the advisability of offering a prize for the best paper presented to the Society each year.

On motion of Mr. Hodgdon, it was voted to print in the next *Bulletin* the suggestions offered by the President in his address and that they be taken up for consideration at the April meeting. Later, this vote was reconsidered and the meeting took up the consideration of the several suggestions contained in the President's address.

On motion duly made and seconded, the Secretary was instructed to have a proper certificate of membership prepared.

It was also voted to refer to the Committee on Revision of By-Laws, when appointed, the question of compounding annual dues.

The suggestions in the address, relating to an increase in the annual dues and for one or more additional classes of members, was discussed, and finally referred to the Board of Government for a report.

Mr. Johnson presented the following resolution which, after a discussion, was adopted unanimously: *Resolved:* That it is the sense of this meeting that as soon as the finances of the Society shall warrant it, the Boston Society of Civil Engineers should publish an independent journal.

The tellers of election submitted their report, giving the result of the letter ballot. In accordance with the report, the President announced that the following officers had been elected:

President — Henry F. Bryant.
Vice-President (for two years) — James W. Rollins, Jr.
Secretary — S. Everett Tinkham.
Treasurer — Charles W. Sherman.
Librarian — Frederic I. Winslow.
Director (for two years) — Frank A. Barbour.

Before declaring a recess to partake of the annual dinner, the President introduced the president-elect, Mr. Bryant, who briefly thanked the members for the honor they had conferred upon him, and expressed his appreciation of the election.

The members then adjourned to the auditorium of the Club House, where members and guests to the number of 158 sat down to the twenty-eighth annual dinner.

After the dinner President Francis again called the meeting to order and introduced Past President John R. Freeman, who gave a very interesting account of the Los Angeles Aqueduct which was profusely illustrated with lantern slides.

Before adjourning the meeting the President thanked the members for the support and assistance which they had given him during the year and the president-elect took the occasion to express the appreciation, not only of the Board of Government, but of all the members, of the faithful and enthusiastic service rendered by the President the past year, which, because of his residence so far from Boston, must have called for much personal sacrifice.

In the evening a smoker was held in the auditorium of the Boston City Club, at which the attendance was over two hundred and seventy-five. The smoker was of the same informal character as last year; light refreshments were served and excellent music was furnished by an orchestra; but the most enjoyable feature was the singing of some old-time songs and many new ones, the words of which were written by members of the Society for the occasion. The opinion was unanimous that this sixty-second anniversary of the founding of the Society was even better than any which had preceded it.

S. E. Tinkham, *Secretary.*

Annual Report of the Board of Government for the Year 1909–10.

Boston, Mass., March 16, 1910.

To the Members of the Boston Society of Civil Engineers:

In compliance with the requirements of the Constitution, the Board of Government submits its report for the year ending March 16, 1910.

At the last annual meeting the total membership of the Society was 678, of whom 664 were members of the Society, 3 honorary members, 11 associates and 19 were members of the Sanitary Section only.

During the year the Society has lost a total of 29 members; 13 by resignation, 10 by forfeiture for non-payment of dues, and 6 have died.

There has been added to the Society during the year a total of 74 members of all grades; 66 have been elected and 6 reinstated to membership in the Society, and 2 have been elected to membership in the Sanitary Section. Three others have been elected, but have not at this date completed their membership.

The present membership of the Society consists of 3 honorary members, 15 associates and 705 members, of whom 18 are members of the Sanitary Section only; making the total membership 723, a net gain of 45.

The record of the deaths during the year is:

Lewis Frederick Rice, a past president of the Society, died April 12, 1909.
Edwin W. Ellis died August 3, 1909.
William Parker died September 30, 1909.
Earle H. Gowing died November 24, 1909.
Laurence Bradford died December 6, 1909.
John H. Emigh died January 6, 1910.

Ten regular, one special and four informal meetings of the Society have been held during the year. The average attendance at the regular and special meetings was 138, the largest being 700 and the smallest 45. The average attendance the year previous was 82, showing an increase of about 70 per cent. for this year.

The following papers have been read at the meetings:

March 17, 1909. — George B. Francis, "Railroad Terminal Improvements at Providence, R. I." (Illustrated.)

April 21, 1909. — E. R. B. Allardice, " Reforestation of the Marginal Lands of the Wachusett Reservoir of the Metropolitan Water Works." (Illustrated.)

May 5, 1909. — (Special) Frederic P. Stearns and Allen Hazen, " Description of Panama Canal and Work thereon Accomplished to Date." (Illustrated.)

May 19, 1909. — E. P. Dawley, " Railroad Tunnel Recently Built at Providence, R. I., for New York, New Haven & Hartford Railroad." (Illustrated.)

June 16, 1909. — Henry F. Bryant, " A High Head Hydro-Electric Development in Vermont." (Illustrated.)

September 15, 1909. — J. W. Rollins, Jr., " Building the Shut-off Dam at the Charles River Basin." (Illustrated.)

October 20, 1909. — Gaetano Lanza and Lawrence S. Smith, " Comparison of the Results Obtained by the Use of Three Theories of the Distribution of the Stresses in Reinforced Concrete Beams, with the Experimental Results."

November 10, 1909. — (Informal.) T. Howard Barnes, " Some Observations on the Engineering Works, People and Conditions in Central America." (Illustrated.)

November 17, 1909. — Joseph H. O'Brien," Waterproofing of Engineering Structures "; and G. S. Vickery, " The Use of Manard Steel in Railroad Track." (Illustrated.)

December 8, 1909. — (Informal.) Charles T. Main and F. M. Gunby, " The Cost of Power for Various Industries under Ordinary Conditions."

December 15, 1909. — James W. Thomas, " An Account of the Tyng's Island Suspension Bridge near Lowell, Mass."; and R. R. Evans and George F. Swain, " The Old Chain Bridge at Newburyport, Mass."; and J. R. Worcester, " The Bellows Falls Arch Bridge." (All papers illustrated.)

January 5, 1910. — (Informal.) Edwin J. Beugler, " The Analysis of Water-Power Propositions." (Illustrated.)

January 21, 1910. — A joint meeting with the American Society of Mechanical Engineers and the American Institute of Electrical Engineers at Hotel Somerset, with speeches and discussion on a joint building for the engineering and other societies in Boston.

January 26, 1910. — Wm. L. Church, " Hydraulic Power Development with special reference to Ambursen Dam Construction." (Illustrated.)

February 9, 1910. — (Informal.) Lester W. Tucker, " Construction of the Gallatin Railway in Montana." (Illustrated.)

February 16, 1910. — Herman K. Higgins, " Progress at Panama." (Illustrated.)

The Sanitary Section of the Society has had four meetings during the year, with an average attendance of 49. It also made an excursion to Brockton on June 2, 1909, in which 25 took part.

The papers read at the meetings of the Section were:

March 3, 1909. — William S. Johnson, " The Volume of Sewage in Sewers Designed according to the Separate System."

October 6, 1909. — Alexis H. French, " The Brookline Sanitary Comfort Station "; Arthur D. Marble, " The Lawrence Sanitary Comfort Station."

December 1, 1909. — Earle B. Phelps, " Disinfection of Sewage by Means of Chemicals." George A. Johnson, " Disinfection of Water by Calcium Hypochlorite."

January 12, 1910. — William Gavin Taylor, " Design of Trickling Filters." O. M. Weand, " Construction and Operation of the Reading (Pa.) Sewage Disposal Works.

The Board of Government has held fifteen meetings during the year, one or more having been held each month, except the month of August.

On invitation of the American Society of Civil Engineers many members of the Boston Society of Civil Engineers attended the annual convention of the former society at Bretton Woods, N. H., during the week of July 5, 1909.

On July 11, 1909, such members of the American Society of Civil Engineers, with their ladies, as found it convenient to stop in Boston on their return from the convention, were entertained by members of the Boston Society of Civil Engineers in Boston, several automobile trips being arranged for their benefit.

At the special meeting held May 5, 1909, a description of the work on the Panama Canal was given by Mr. Frederic P. Stearns and Mr. Allen Hazen, members of a special engineering commission appointed by President Taft to visit the Isthmus. The attendance of this meeting was upwards of seven hundred, including ladies, and this may be recorded as the largest meeting in the history of the Society.

The Board commends the practice of appropriating as large a sum as can be spared for the purchase of books for the library and recommends that the sum of $50 be appropriated this year for that purpose.

The Board also recommends that a committee be appointed for the consideration of revisions of the By-Laws, which have been suggested at various times, regarding methods of election of officers, classification of members, adjustment of dues, etc.

At the last annual meeting of the Society the Board of Government was authorized to proceed with the project for a permanent home and to expend $125 000 for land and building. Later it was authorized to expend the permanent fund of the Society for this purpose as provided in the Constitution and By-Laws.

The formulation of a plan for such a home was referred to the Board and the Committee on Permanent Quarters, and several joint meetings were held early in the year. An appeal was also sent out by a special committee, requesting subscriptions to increase the permanent fund, and efforts made to enlist other associations in rental guarantees to the Society for rooms for their use. From the joint report of the Board and the Committee, which will be presented at this annual meeting, it will be seen that the results have not been very satisfactory; the matter was, therefore, held in abeyance during the summer.

Later a joint meeting and dinner were arranged by a committee of this Society acting with committees of the local members of the American Society of Mechanical Engineers and the American Institute of Electrical Engineers, at which meeting the question of a joint club house and engineering building might be brought up.

This meeting and dinner was held on January 21, 1910, with an attendance of more than four hundred, and at the proper time the President of this Board introduced the subject with the result that the several engineering and kindred societies have been memorialized by the direction of those in attendance at that meeting, to appoint members to act on a joint committee to devise ways and means to establish and run such a club house and building as seems wise.

This Board on February 16, 1910, appointed as members of that joint committee, Messrs. George A. Kimball, Luzerne S. Cowles and Charles S. Clark.

The Board of Government looks forward to a report from the joint committee, which will result either in favorable joint action or a clear statement that such joint action is inadvisable, and feels that it has done all in its power during the year to bring this subject to a favorable conclusion.

For the Board of Government,

GEORGE B. FRANCIS, *President.*

ABSTRACT OF THE TREASURER'S AND SECRETARY'S REPORTS FOR THE YEAR 1909–1910.

CURRENT FUND.

Receipts:

Dues for 1909–1910	$4 269.00	
Dues for 1910–1911	46.00	
Dues for 1908–1909	17.00	
Rent of rooms	1 000.00	
Advertisements	865.00	
Library fines	3.50	
Sale of JOURNALS	6.50	
Balance on hand, March 17, 1909	721.69	
		$6 928.69

Expenditures:

Rent	$2 010.00	
Lighting	48.54	
Association of Engineering Societies	1 661.62	
Printing, postage and stationery	1 397.48	
Salaries	750.00	
Reporting meetings	152.50	
Stereopticon	135.00	
Books	83.00	
Binding	73.20	
Periodicals	36.50	
Repairs	8.75	
Advertisements in JOURNAL	15.00	
Incidentals	31.83	
Insurance	8.88	
Annual meeting	71.10	
Meeting, January 21, 1910	47.78	
Rent of drawer in vault	10.00	
		$6 541.18

Balance on hand, March 16, 1910	$387.51
Balance on hand, March 17, 1909	721.69
Excess of expenditures over receipts during year	$334.18

PERMANENT FUND.

Receipts:

Sixty-six entrance fees, Society	$660.00	
Two entrance fees, Sanitary Section	10.00	
Interest on deposits	203.07	
Interest on bonds	456.00	
Subscription to Building Fund	100.00	
Balance on hand, March 17, 1909	2 011.10	
		$3 440.17

Expenditures:

Merchants' Co-operative Bank, dues on shares	$300.00	
Volunteer Co-operative Bank, dues on shares	300.00	
Workingmen's Co-operative Bank, dues on shares,	300.00	
Franklin Savings Bank, deposit	20.48	
Warren Institution for Savings, deposit	30.74	
Boston Five Cents Savings Bank, deposit	29.56	
Provident Institution for Savings, deposit	25.29	
Eliot Five Cents Savings Bank, deposit	21.49	
Institution for Savings in Roxbury, deposit	20.07	
		1 047.63
Balance on hand, March 16, 1910		$2 392.54

PROPERTY BELONGING TO THE PERMANENT FUND, MARCH 16, 1910.

Twenty-five shares Merchants' Co-operative Bank	$3 779.67
Twenty-five shares Volunteer Co-operative Bank	4047.40
Twenty-five shares Workingmen's Co-operative Bank	1 195.88
Deposit in Franklin Savings Bank	527.62
Deposit in Warren Institution for Savings	792.51
Deposit in Boston Five Cents Savings Bank	742.08
Deposit in Provident Institution for Savings	761.61
Deposit in Eliot Five Cents Savings Bank	589.73
Deposit in Institution for Savings in Roxbury	550.60
Republican Valley Railroad Bond, 6%, par value	600.00
Boston Elevated Railway Bonds, 4½%, par value	4 000.00
C. B. & Q. Railroad Joint Bonds, 4%, par value	3 000.00
American Tel. & Tel. Co. Bonds, 4%, par value	3 000.00
Cash on deposit	2 392.54
Total Permanent Fund	$25 979.64
Amount of fund as per last annual report	24 141.25
Gain during the year	$1 838.39

TOTAL PROPERTY OF THE SOCIETY IN THE POSSESSION OF THE TREASURER.

Permanent Fund	$25 979.64
Current Fund	387.51
Total	$26 367.15
Amount as per last annual report	24 862.94
Increase during year	$1 504.21

ATTENDANCE AT ANNUAL MEETING.

The following list contains the names of members who registered as being in attendance at the Annual Meeting. The list is not complete, as some members failed to register, and it does no contain the names of all guests. Total attendance of members and guests at the various functions is estimated at 300.

Adams, E. P.
Adams, H. S.
Alden, H K.
Alvord, H. B.
Ames, B. E.
Ambrose, D. A.

Bailey, F. S.
Barbour, F. A.
Barker, J. K.
Barnes, W. T.
Bartlett, Arthur
Bartlett, C. H.
Bateman, L. H.
Bidwell, L. B.
Bourne, F. B.
Bowers, George
Brazer, G. H.
Breed, C. B.
Brewer, Bertram
Brock, N. S.
Brooks, Fred.
Brown, T. M.
Bryant, H. F.
Bullock, W. D.
Burke, J. R.
Butcher, W. L.

Callahan, J. F., Jr.
Campbell, John
Campbell, T. F.
Carpenter, G. A.
Carter, F. H.
Carty, J. E.
Chadwick, H. M.
Charnock, F. R.
Churchill, W. W.
Clapp, Otis F.
Clark, C. S.
Coffin, S. P.
Coggeshall, R. C. P.
Cook, M. T.
Cowles, L. S.
Cunningham, J. E.
Curtis, R. E.

Davis, E. S.
Davis, W. W.
Dawley, E. P.
Dean, F. W.
DeWolf, J. O.
Doane, A. O.
Dodd, C. H.
Dorr, E. S.
Doten, C. C.
Draper, H. R.
Dutton, C. H.

Eaton, J. H.
Elkins, C. R.
Ellis, J. W.
Ellis, W. H., Jr.
Emerson, G. C.
Emerson, G. D.
Evans, R. R.

Fay, F. H.
Felton, B. R.
Felton, C. R.
Ferguson, J. N.
Fernald. C. T.
FitzGerald, Desmond
Foss, Clifford
Fox, Benjamin
Francis, G. B.
Freeman, J. R.
French, A. H.
French, H. W.

Gage, F. O.
Garrod, J. A.
Gerrish, J. H.
Gerrish, H. T.
Gould, J. A.
Gow, C. R.
Gunby, F. M.

Hale, R. A.
Hale, R. K.
Hamilton, G. W.
Harrington, D. A.
Harrington, Ephraim
Hartwell, H. C.
Haskell, E. A.
Hastings, L. M.
Hazelton, C. W.
Higgins, H. K.
Hobson, G. F.
Hodgdon, F. W.
Hodges, A. W.
Hollis, I. N,
Hooker, G. F.
Houghton, C. E.
Howard, J. L.
Howe, E. W.
Howe, G. E.
Howland, A. H.
Huntington, F. W.

Jackson, William.
Jaques, W. H.
Johnson, W. S.

Kidd, A. L.
Kimball, E. R.
Kimball, F. A.
Kimball G. A.
King, G. A.
Kent, Willard
Knowlton, C. F.

Larned, E. S.
Lawrence, F. K.
Lawton, L. C.
Learned, W. F.
Lincoln, J. G.
Loud, R. W.
Lovis, A. M.
Luther, H. B.

MacCurdy, H. S. R.
MacMillan, A. B.
Main, C. T.
Manley, Henry
Manley, L. B.
Marble, A. D.
Marsh, C. R.
Marston, F. A.
McClintock, W. E.
McCue, H. M.
McInnes, F. A.
McNulty, J. M.
Miller, H. A.
Mills, Charles.
Miner, F. M.
Mixer, C. A.
Moore, L. E.
Morphy, L. G.
Morrill, F. P.
Morse, W. P.

ATTENDANCE AT ANNUAL MEETING. — *Continued.*

MOSES, E. M.
MOSES, J. C.
MOULTROP, I. E.
MURRAY, F. L.

NELSON, G. A.
NEWMAN, R. R.
NORCROSS, T. W.
NORWOOD, E. A.

O'BRIEN, J. H.
OLIN, E. R.
OSBORN, J. F.

PARKER, A. W.
PEARSON, C. A.
PEAVY, L. D.
PETTEE, E. E.
PLIMPTON, A. L.
PRATT, C. B.
PRATT, H. B.
PUTNAM, C. E.

RABLIN, J. R.
READ, R. L.
RICE, R. E.
RICHARDSON, E. B.
RIPLEY, H. L.
ROBBINS, A. G.
ROBINSON, L. C.
ROCKWELL, E. H.
ROGERS, E. H.
ROLLINS, J. W., Jr.
ROSS, E. W.
ROURKE, J. J.
RUSSELL, J. B.

SAMPSON, G. T.
SANBORN, F. B.
SAVILLE, CHARLES
SAVORY, E. E.
SAWTELL, H. E.
SAWTELLE, H. F.
SCOULER, DANIEL, JR.
SEMPLE, W. J. C.
SERVIS, G. O. W.
SHAW, W. T.
SHERMAN, C. W.
SHERRIFF, R. J.
SHERRY, F. E.
SMALL, GILBERT
SMITH, M. B.
SPALDING, F. P.
SPOFFORD, C. M.
STEARNS, F. P.
STIFF, H. T.
STONE, J. E.
STREET, L. L.
SUTTON DAVID.

TARBELL, A. E.
TAYLOR, L. A.
THOMPSON, S E.
THORNDIKE, S. H.
TINKHAM, C. S.
TINKHAM, S. E.
TOOF, F. L.
TREFETHEN, E. M.
TUCKER, J. I.
TUCKER, L. W.
TURNER, C. C.

VESPER, R. A.

WEBB, D. C.
WESTON, R. S.
WHITNEY, F. O.
WHITTET, R. M.
WILEY, W. T.
WILSON, H. P.
WINSLOW, F. I.
WISEMAN, J. M.
WOOD, D. M.
WOOD, H. B.
WOOD, I. S.
WOODFALL, J. L.
WORCESTER, J. R.
WRIGHT, EDWARD, Jr.

GUESTS

AYER, JOHN.

BIGELOW, W. W.
BLANCHARD, WINSLOW
BRIGGS, A. E.
BUSTED, W. A.

CLARKE, T. W.
CONNOR, S. L.
CRANDALL, C. L.
CUNNINGHAM, F. H.

DAVIS, C. E.
DRAKE, C. A.
DUDLEY, GEORGE

ELLIS, L. F.
ENEBUSKE, CARL
EVATT, WALTER

FITZGERALD, F. J.
FOSS, G. H.
FRANCIS, H. N.

GLAZIER, L. G.

HALN, C. E.
HAM, W. H.
HODGES, W. J.
HOVEY, P. R.

JACKSON, F. W.

LAMSON, J. S.
LLOYD, T. P.

MALEY, P. J.
MANLEY, HENRY, JR
MARSH, ELMER
MCELLIGOTT, JAMES
MCINNES, A. A.
MERRILL, G. F.
MILLER, W. G.

NAWN, HUGH
NEWTON, J. B.
NUTTER, F. H.

PARKER, THEODORE
PARSONS, E. M.
PATTON, J. H.
PEARSON, A. L.
PLAISTED, A. I.
PRESTON, JOHN

REARDON, D. J.
RILEY, L. B.

SANTAR, G. P.
SCORGIE, J. C.
SERLE, JAMES
SIMPSON, J. B.
SINCLAIR, W. F.
SNOW, RALPH.
SULLIVAN, J. H.
SULLIVAN, T. R.

TITCOMB, A. C.
TOWNSEND, DANIEL
TRACEY, PROF.

WADE, E C.
WARREN, H. D.
WELLINGTON, W. O.
WING, W. L.

Report of the Committee on the Library.

The annual report of the Committee on the Library, which is herewith submitted, again emphasizes the fact that the walls of our rooms are still bulging outward.

The Library had the greatest accession year in the history of the Society, due to the gift of 304 volumes bound in cloth and a number in paper, all from the library of one of our former members, Mr. George Alanson Parker, who died in 1887; the gift being tendered by his son, one of our members, Mr. Harold Parker.

A special bookplate has been printed for insertion in these volumes which are not yet placed upon the shelves, due to lack of room. All of these volumes, although highly prized for the Library, are such as would not naturally fall into circulation, as few of them bear a later date than 1875, but they are of inestimable value in the history of the profession and its developments.

The Society owes a debt of gratitude to Mr. Harold Parker for his thoughtfulness in reserving these volumes for our Society. For the present they are stacked in the Library.

Aside from this gift, the Society has added 140 volumes bound in cloth and 122 in paper, 13 of those in cloth being the gift of Mr. Clemens Herschel, making a total in the Library, bound in cloth, of 6 585 volumes, without the Parker Library. Of these, 164 belong to the Herschel Library. It is possible by providing more shelf room and leaving the Parker Library undisturbed, to still house for several years more all books for which there would be any active demand, although always encroaching on the area desired for readers.

It may be wise, and this is offered as a suggestion from the Library Committee only, to engage one of the smaller rooms near our present quarters and on the same floor as an adjunct to our reading room. In this small room no books would be kept, but members might retire there for quiet study, as there is now no part of our Library where a reader may enjoy positive quiet.

During the year 193 volumes have been borrowed from the Library and $3.50 in fines have been collected.

Five book reviews have been written by members for the *Bulletin*, for which the thanks of the committee are tendered.

By arrangement with the McGraw-Hill Book Company 15 books, to the value of $40, have been acquired in exchange for advertising in the columns of the *Bulletin*.

A few odd volumes of magazines which seemed worth the expense have been bound in order to save them. Twenty-nine volumes of current magazines have also been bound.

A second plan-case should be bought to carry out the plan of properly caring for the Government Survey sheets which require much more room than they now have for convenient handling. The committee recommend that $30 be appropriated for this purpose and that $75 be appropriated for current engineering books during the coming year.

In addition to this the committee hopes that some member or members of the Society may feel moved to start a library endowment fund, of say $1 000, the income of which could be used to purchase current engineering books, the value or price of which appears to be rising every year.

Frederic I. Winslow,
J. M. Siner,
Henry T. Stiff,
Edwin R. Olin,
L. D. Thorpe,
Committee.

Report of the Board of Government and Committee on Permanent Quarters. (Abstract.)

To the Boston Society of Civil Engineers:

On February 17, 1909, the Committee on Larger Membership and Club House, in accordance with instructions previously received from the Society, reported four different studies for a permanent home or club house, of which No. 3 was for "a union club house, without cuisine, for the exclusive use of the several engineering and architectural societies whose headquarters are in Boston." (See report printed in both the Journal and the *Bulletin* for March, 1909.)

At the annual meeting, held on March 17, 1909, the matter was considered carefully and after full discussion the following vote was passed:

"*Voted:* That the Board of Government and the Committee on Quarters, with the Special Committee on Larger Membership and Club House, be requested to definitely formulate a plan along the lines of Scheme 3, and that the Board of Government be authorized to expend such funds to that end as may be required, it being understood that the cost of the proposed scheme should not exceed $125 000, including land and building."

On March 30, at a joint meeting of the Board and the committee, it was decided that the above scheme could be successfully financed without materially increasing the annual dues, provided the permanent fund could at once be increased by the sum of $50 000, and a special committee, consisting of Messrs. FitzGerald, Swain and Stearns, was appointed to canvass the Society for contributions. On April 26, this committee sent out an urgent appeal for subscriptions, calling attention to the fact that "a particularly favorable opportunity seems to present itself to secure at a moderate price a lot of land in a central situation with a four-story building which can be easily fitted to the requirements of the Society."

An effort was made to ascertain as accurately as possible the financial side of the problem. Various phases of the question were investigated by special committees; one as to the cost of preparing the house for occupancy and another upon the financial aspect of the scheme.

Owing to the impossibility of making any satisfactory arrangements with other societies and the fact that the initial subscriptions fell so far short of the sum fixed by the joint committee, no further action was taken.

While the amount raised was not sufficient to carry out the plans authorized under Scheme No. 3, the committee feels that its efforts have not been entirely without results. The interest felt by professional men in providing common headquarters, where all may unite for business or social purposes, is rapidly increasing. It is possible that the enthusiastic movement inaugurated at the recent Westinghouse dinner may result in some practicable plan and it is very desirable that a solution, satisfactory to the members of this Society, may be found without unreasonable delay.

In view of the possible results of this wider movement, your committee ask to be discharged.

For the Committee,

George B. Francis, *Chairman.*

Report of the Committee on Excursions.

To the Members of the Boston Society of Civil Engineers:

During the past year nine excursions have been made by the Society, as follows:

April 21, 1909. — To the Locomotive Terminal of the Boston & Albany Railroad at Allston, Mass., also to the new Freight Terminal at East Cambridge, Mass. Attendance, 23.

May 21, 22, 1909. — To the work under construction for the water department of the city of Springfield in the development of Little River. Attendance, 44.

June 16, 1909. — To the new Forest Hills Station of the Boston Elevated Railway and to the Cold Storage Plant of the Quincy Market Cold Storage and Warehouse Company. Attendance, 130.

September 15, 1909. — To the new Deep Water Terminal of the Boston & Albany Railroad at East Boston, Mass. Attendance, 27.

October 20, 1909. — To the Charles River Dam and other work of the Charles River Basin Commission at the Fenway. Attendance, 40.

November 17, 1909. — To the Works of the Metropolitan Park Commission along Mystic River and Alewife Park. Attendance, 7.

December 22, 1909. — To the Plant of the Coffin Valve Company at Neponset, Mass. Attendance, 30.

January 26, 1910. — To the work under construction on the Cambridge Main Street Subway. Attendance, 230.

February 16, 1910. — To the Plant of the American Waltham Watch Company. Attendance, including ladies, 60.

Total attendance, 591; average attendance, 66.

The committee has continued to compile information regarding new engineering work for publication in the *Monthly Bulletin* of the Society, and during the year 51 pages of this have been published, or an average of about $5\frac{2}{3}$ pages for each of the nine issues of the *Bulletin*. This feature of the *Monthly Bulletin* is increasing in importance, as can be seen from the total number of pages printed for each of the last four years, which have been respectively 36, $39\frac{1}{2}$, 43 and 51 pages. This has only been made possible by the coöperation of the members of the Society and others carrying on the work and the committee at this time wishes to extend its thanks to all who have thus contributed. It is hoped that such coöperation may be even more general in the future, as its publication helps to keep the members of the Society in touch with current engineering work and to make interest more general in the excursions.

Mr. H. L. Coburn, who was appointed a member of this committee, found it impossible to serve and this vacancy was filled by the appointment of Mr. Richard K. Hale.

The committee has a number of plans in the embryo which it will be glad to transmit to its successors.

There is a balance in the hands of the committee of $11.09.

Respectfully submitted,

H. K. Barrows, *Chairman.*
L. G. Morphy.
Richard K. Hale.
F. L. Murray.
Frank H. Carter, *Secretary.*

Boston, Mass., March 2, 1910.

At the annual meeting of the Sanitary Section, held March 3, 1909, the reports of the committees for the preceding year were placed on file. The committees on Rainfall and Run-Off, Collection and Tabulation of Sewerage Statistics, and Uniform Specifications for Sewer Pipe, respectively, were continued. The present membership of these committees is as follows:

On Rainfall and Run-Off: George A. Carpenter, chairman; H. K. Barrows, Lewis M. Hastings, Hector J. Hughes, William S. Johnson, Arthur T. Safford; Harrison P. Eddy, secretary.

On Collection and Tabulation of Sewerage Statistics: Harrison P. Eddy, chairman; Bertram Brewer, Charles Saville.

On Uniform Specifications for Sewer Pipe: Leonard Metcalf, chairman; E. S. Dorr, Charles R. Felton, Lewis D. Thorpe; F. A. Barbour, secretary.

On June 2 the Section made an excursion to Brockton and Silver Lake. The party arrived at Brockton and took motor carriages for the Sewage Disposal Works. After an inspection of the works the party was served a lunch through the courtesy of the Brockton Sewerage Commission, and conveyances were taken for Silver Lake, the source of the city's water supply. Here opportunity was given for viewing two large pumping engines, one in process of erection and nearly completed. Dinner was served and after an enjoyable out-of-doors day had been spent the members returned to Boston. About 25 were present.

The following papers have been read at regular and special meetings:

March 3, 1909. William S. Johnson, "The Volume of Sewage in Sewers Designed according to the Separate System."

October 6, 1909. Alexis H. French, "The Brookline Sanitary Comfort Station." Arthur D. Marble, "The Lawrence Sanitary Comfort Station."

These papers were amplified by Messrs. Harvey, Bunting and Humphries, who described plumbing fixtures which they had designed or had for sale.

The meeting was preceded by an excursion to Brookline.

December 1, 1909. Earle B. Phelps, "Disinfection of Sewage by Means of Chemicals." George A. Johnson, "Disinfection of Water by Calcium Hypochlorite."

January 12, 1910. William Gavin Taylor, "Design of Trickling Filters." O. M. Weand, "Construction and Operation of the Reading (Pa.) Sewage Disposal Works."

All of the papers were illustrated with lantern slides or diagrams and the discussions by the members have been full of interest.

The attendance at the meetings has been as follows:

Annual meeting	51
June excursion	25
October meeting	27
December meeting	69
January meeting	50

Exclusive of the June excursion the average attendance has been 49. The average attendance for the previous year was 45.

The additions to the membership of the Section are as follows:

By election. — March 3, 1909, Arthur Fuller Harkness.
October 6, 1909, Joseph Enright Conley.
October 6, 1909, Joseph B. Stewart, Jr.
December 1, 1909, Ralph J. Sherriff.
By enrolment from the Society. — December, 1909, Frank A. Marston.
January, 1910, James R. Baldwin.

An attempt has been made to increase the membership of the Section from among those city and town officials who have to do with the operation of sewerage systems. To this end letters have been written to several of these gentlemen, setting forth the advantages of the Section and the benefit which would follow the meeting together of town officers, superintendents and engineers.

We believe that so far as practicable the meetings should be devoted to those problems which arise in the practice of the sanitary arts, to the detailed methods for adapting the principles of hygiene and sanitary engineering to the every-day life of the community, rather than to the theoretical discussion of the principles exclusively.

For the Executive Committee,

Robert Spurr Weston, *Clerk.*

SPECIAL MEETING, MARCH 30, 1910.

A special meeting of the Society conducted by the Sanitary Section, was held at the Boston City Club on Wednesday evening March 30, at 7.30 o'clock, the subject under discussion being that of Garbage Disposal.

Colonel William F. Morse of New York City presented the principal paper, which was very fully illustrated by lantern slides. Mr. Willis C. Merrill, Manager of the New England Sanitary Waste Disposal Company, of Boston, followed Colonel Morse. It was expected that Mr. Charles S. Wheelwright of Providence would be present and read a paper, but he was prevented from doing this on account of illness. A letter from him was however read at the meeting.

In the discussion which followed several members of the Society took part, the more extended remarks being made by Mr. Guy C. Emerson, Superintendent of Streets, of Boston.

The general tenor of the meeting seemed to be unified in respect to the present status of garbage disposal, — that it is an engineering problem that must be taken up, studied and solved for each locality by competent sanitary engineers, rather than left to municipal boards of government or officials who are not as a rule of such training as to be capable of intelligently dealing with a problem of this nature.

Fifty-five members of the Society and Sanitary Section, with guests, were present.

H. K. Barrows, *Clerk.*

LIST OF MEMBERS.

ADDITIONS.

T. Morris Brown	9 Shailer St., Brookline, Mass.
G. Frank Kemp (Sanitary Section)	348 Central Ave., Milton, Mass.
Edward Guild Lee	Portland, Maine.
Ralph Edmund Smith	22 School St., Lynn, Mass.
Reynold H. Sutherland	51 Breed St., Lynn, Mass.
Edward Wright, Jr.	140 State House, Boston, Mass.

CHANGES OF ADDRESS.

J. Earl Cunningham	9 Willow St., Boston, Mass.
Frank M. Gunby	201 Devonshire St., Boston, Mass.
Will J. Sando	430 Kane Place, Milwaukee, Wis.
Alden S. Tileston	Care of City Engr., Dover, N. H.

RESIGNATIONS.

Robert B. C. Bement	March 16, 1910.
Waldo S. Coulter	March 16, 1910.
George F. Hardy	March 16, 1910.
William F. Mahoney	March 16, 1910.
George S. Morrill	March 16, 1910.
William E. Mott	March 16, 1910.
Alfred T. Palmer	March 16, 1910.
Herbert C. Poore	March 16, 1910.
William L. Tobey	March 16, 1910.
Charles C. Whittier	March 16, 1910.

George Leonard Vose.

Honorary Member of the Boston Society of Civil Engineers.

President, March 19, 1884, to March 16, 1887.

Born April 19, 1831.

Joined the Society November 16, 1881.

Made an Honorary Member March 18, 1896.

Died March 30, 1910.

LIBRARY NOTES.

Most of the periodicals for the latter half of 1909 have been bound and placed on the shelves.

Recent Additions to the Library.

U. S. Govt. Reports.

Coast and Geodetic Survey — Annual report for 1909.

State Reports.

Ohio State Board of Health. Annual Report for 1909.
Michigan State Board of Health. Annual Report for 1908.
Mass. Boundary Lines. Ashburnham, Ashly, etc.

City and Town Reports.

Attleborough, Mass., Annual Report of Water Dept. for 1909.
Belmont, Mass., Annual Report of Water Commissioners for
Boston, Mass., Second Report of Commission on Refuse Disposal.
Brookline, Mass., Annual Report of Water Board for 1909.
Detroit, Mich., Annual Report of Water Commissioner for 1909.
Holyoke, Mass., Annual Report of Water Commissioner for 1909.
New Bedford, Mass. Annual Report of Water Board for 1909.
Newton, Mass. Annual Report of Water Commissioner for 1909.
Plainfield, M. J. Annual Report of City for 1909.
Plymouth, Mass. Annual Report of Water Commissioners for 1909.
Providence, R. I. Quarterly report Board of Public Works, Dec. 1909.
Reading, Mass., Annual Report of Water Commissioners for 1909.
Rutland, Vt. Annual City Report for 1909.
St. Paul, Minn. Annual Report of Water Commissioner for 1909.

Salem, Mass. Annual Report of Water Board for 1909.

Wilmington, Del. Annual Report of Water Commissioner for 1909.

Winchendom, Mass. Annual Report of Water Commissioners for 1909.

Miscellaneous.

American Water Works Association, Report for 1909.

Harnessing of Niagara, Unwin Herschel *et als.*

Refuse Disposal by Destructor, Col. W. F. Morse.

Essex County Engineer, Annual Report for 1909.

Sewage Investigation in various cities, W. F. Williams.

Experiments in disposal of manufacturing wastes at Gloversville, N. Y.

General specifications for steel Highway bridges, etc., by Bernt Berger.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK.

(Engineers and contractors are urged to send in descriptions of their work for publication in the Bulletin. Such notes should be sent to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water St., Boston, before the first Wednesday of each month.)

United States Government.—Navy Department.—*Navy Yard, Boston.* Contract has just been awarded for construction of an extension to Building No. 62, consisting of a two-story brick building with steel and reinforced concrete floors, costing about $50,000.

Work is in progress on a reinforced concrete oil storage building about 60 feet by 75 feet.

The extension of the second story of the ropewalk, to form a storage and shipping room, is nearly completed.

In the central power plant a 5000 cu. ft. air compressor is nearly ready for test. A 1500 K. W. Westinghouse turbo-generator will be delivered shortly and proposals are being received for condensing equipment.

Dredging in slip between Piers 2 and 3 and improvements to Piers 3 and 8 are nearly completed. A small contract for dredging will shortly be awarded.

Work will be commenced at once on the installation of an additional rail on a concrete foundation around Dry Dock No. 2, forming, with the inner rail of the 20 feet gauge crane track, a standard gauge track, so that light locomotive cranes can be run close to the dock and be employed in handling blocking, shores, etc.

Naval Hospital in Chelsea.—Excavation is nearly completed, and concrete footings are being placed for new Naval Hospital. This building comprises an administration section, two wards, solarium, operating and subsistence buildings.

Army Engineers.—The surveys for the Inter-Coastal Canal are now completed.

The dredging of a thirty-five foot channel in the harbor is being carried on.

Commonwealth of Massachusetts.—Metropolitan Park Commission.—No new work is under way and there is none proposed. The construction work on the Alewife Brook improvement and the Mystic Valley Parkway is being completed.

Harbor and Land Commissioners.—The work of dredging the berth on the easterly side of the Commonwealth Pier at South

Boston, and the area lying between it and the main ship channel, is still in progress.

The work of dredging the harbor at West Falmouth, on the easterly shore of Buzzards Bay, has been re-commenced.

The work of dredging the channel of Cuttyhunk Harbor has just started. The town also has under construction a pile wharf at the inner end of the proposed channel to be used as a public landing.

The work of strengthening and extending the stone jetties at the mouth of Herring River at West Harwich has just been commenced.

The work of dredging an anchorage basin for yachts in Lynn harbor is in progress.

The contract for dredging a channel in the upper portion of Neponset River has been let and it is expected that work will be commenced shortly.

Charles River Basin Commission.—Contract No. 1 for the Charles River Dam is practically finished and the contract for loaming the Back Bay section of the Embankment will be finished this coming week.

Boston Elevated Railway. — Elevated and Subway Construction. — *Dudley Street Station.* Final alterations are under way at Dudley Street, which will materially relieve the somewhat congested conditions on the East Elevated (surface) loop, now experienced at the rush hours. The plan adopted provides for an additional wide stairway from the southerly transfer bridge to the present unloading platform, this platform to be changed over to a loading one in order to allow the boarding of surface cars from both sides.

A new platform with canopy is being constructed on the outside of the east loop to be used as an unloading platform, the result being that all surface cars will make two stops on this loop instead of one as at present. The adoption of the proposed scheme will more than double the area of the loading platform of the east loop.

South Station. — The South Station platform of the elevated has been extended about two car lengths towards Dewey Square, and the same amount removed from the south end of the platform, in order to permit the installation of a 5-car siding between the station platform and Beach Street. This siding between the two main elevated tracks, will be used to reverse the direction of the

North Station — South Station "shuttle" trains, which are now required to proceed to Beach Street and Harrison Avenue where they are then reversed in the face of north bound traffic.

After the terminous of the "shuttle" trains is changed to South Station, the tracks will be somewhat separated at Beach Street Station and the platform enlarged and extended for 8-car trains.

Cambridge Main Street Subway. — At present about 5700 feet of the subway has been completed including inclines. At the Bay street tunnel side walls have been pushed westerly to Remington street which is as far as the shield will go in this direction. The aligment of the two side walls was checked at this point, there being a variation of a $\frac{1}{4}''$. The surface tracks were removed from Massachusetts avenue between Prospect street and Lafayette square, March 31, and excavation is being pushed rapidly at this place.

East Cambridge Extension.—Work on the land piers at East Cambridge is progressing rapidly, and the foundations for the viaduct have been put in through the Boston & Maine freight yard. Work was begun this week on tearing out the temporary bridge across the Charles River at this point.

Lowell, Mass. — The Aberthaw Construction Company is just starting the erection of a twelve-story cotton storehouse for the Massachusetts Cotton Mills. The design is by Lockwood, Greene & Co. The building, covering 100 by 256 feet, is located on Bridge street, just off the main square of Lowell. The columns of the first eight stories are a combination of concrete and structural steel; the upper four stories being carried on reinforced concrete columns, and the floors are flat slab mushroom construction. The design is of the usual low story type of cotton storehouse. Owing to the nature of the ground on which the building will rest, a foundation of either piles or caissons will be used. At the present time, the engineers are sinking test shafts to determine the exact nature of the soil.

Boston, Mass. — On Ferdinand Street, near the First Corps Cadet Armory, the Aberthaw Construction Company has just removed the forms from under some very long concrete spans supporting concrete roof; the beams span fifty-five feet.

Plymouth, Mass. — Work has been started by Benj. Fox, Inc. on a reinforced concrete addition to the Storage Plant of

the Plymouth Cordage Company, North Plymouth, Mass., consisting of four sections, 60 by 200 feet.

Newtonville, Mass. — An addition to the Silver Lake Company's factory in Newtonville is being constructed by Benj. Fox, Inc., consisting of four four-story brick building 100 by 50 feet, with mass concrete foundation and reinforced concrete floors. Somes & Parsons are the architects.

Cambridge, Mass. — A building is being constructed by Benj. Fox, Inc. 25,000 square feet floor area for the Hathaway Bakery. Concrete piles and concrete foundation are used with a brick superstructure.

Buffalo, N. Y. — The Pierce-Arrow Motor Car Company has just placed contract for the fifth building with the Aberthaw Construction Company. The original plant and all the additions were designed by Lockwood, Greene & Co. The plant throughout is of reinforced concrete. Between the last of September and the 1st of February, the Aberthaw Company built the four-story storage building, 60 by 307 ft. with two ells, is just completing the nickel plating building, and will start in a few days to excavate for the foundations for the truck assembly and the motor testing buildings and the garage. The last contract includes doubling the size of the office building, carrying it the length of the lot. The truck assembly building is partly flat slab construction and partly concrete sawtooth roof.

Wendell, Mass. — On the Millers River, a dam is being constructed by the Orange Electric Light Company. This dam, composed entirely of concrete, is 190 feet long and 20 feet high from crest to tailwater. The wheels, placed in three sets in an open flume, are direct-connected to the electric generators, two of which are direct-connected to the steam engines. The average capacity of the plant is approximately 900 H. P. Sluice gates, operated from a gallery inside the dam are provided for use in high water. The work also includes two concrete highway bridges over the Millers River and Moss Brook.

At the present time the work is entirely completed except the power-house and a gap in the dam 24 feet long. It is expected that the plant will be ready for operation on June 1.

The construction work is being done by day labor under the direction of the company. Mr. William D. Thompson is the con-

sulting engineer. Mr. F. B. Saunders has charge of the construction.

Newburyport, Mass. — On the Chain Bridge three of the cables are in place and the fourth and last one is being woven on the ground. It is expected that the iron work for this bridge can be erected very shortly, all the material being on the ground. The work is being done by Holbrook, Cabot & Rollins.

Saybrook, Conn. — Work on the Connecticut River bridge has begun and the plant is being assembled. This work consists of two abutments and twelve piers, the piers being all open caisson work with grillages founded on piles driven and sawed off at the bed of the river; the water being from 15′ to 30′ in depth. Holbrook, Cabot & Rollins contractors.

Cape Cod Canal. — The last pier of the Buzzards Bay drawbridge for the New Haven R. R., over the Cape Cod Canal, has been placed, and these three piers will be finished the coming week. Two of these piers (those on either side of the channel) are built on piles with grillages 33′ below low water. Work on the trestle approaches to this bridge has been begun, — Holbrook, Cabot & Rollins, Contractors.

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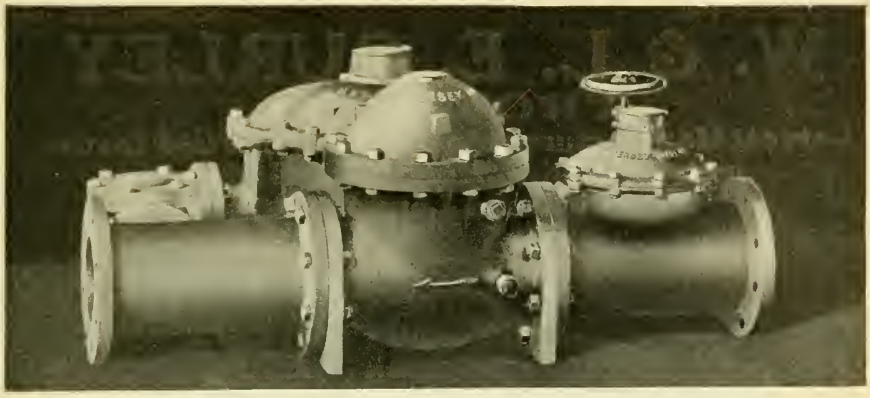

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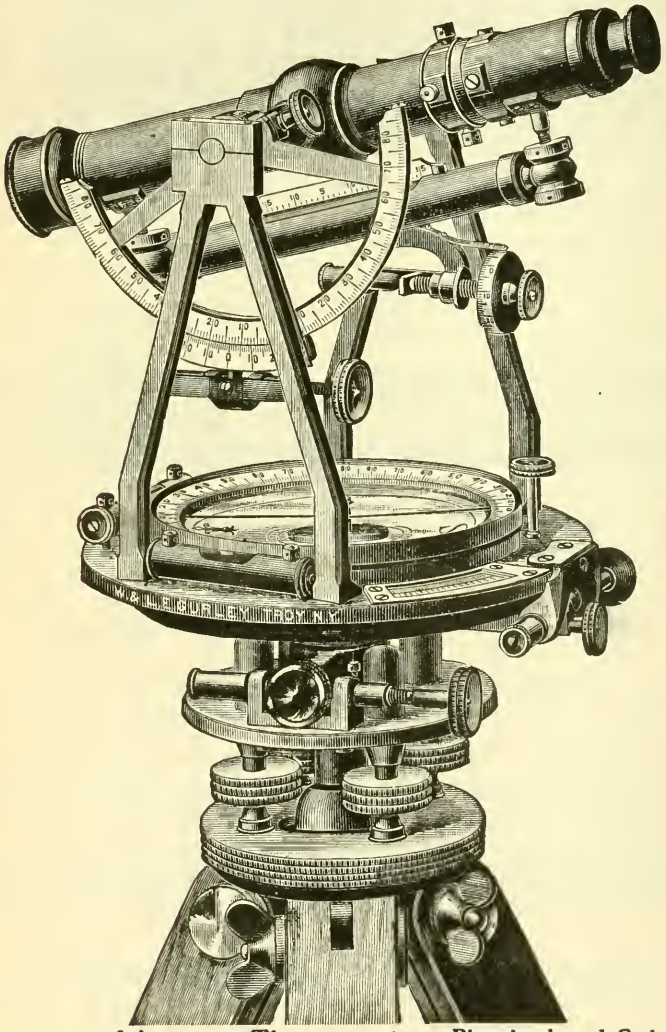

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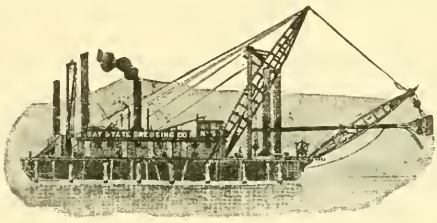

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MONTHLY BULLETIN.

NEW SERIES. MAY 1910 No. 42

COMING MEETINGS AND IMPORTANT ITEMS IN THIS BULLETIN.

May 18, 1910. Regular meeting in Chipman Hall at 7.30. Description of East Boston Deep Water Terminals of B. & A. R. R. by L. G. Morphy.

June 1, 1910. Excursion of Sanitary Section to Hudson and Marlboro, Mass. All day trip.

June 1, 1910. Joint meeting of Engineers in Huntington Hall at 8 o'clock. Address by Pres. L. B. Stillwell of American Institute of Electrical Engineers, on Conservation.

Attention is called to notice in regard to Certificate of Membership.

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, May 18, 1910, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. Luis G. Morphy, Designing Engineer, B. & A. R. R., will give a description of the East Boston Deep Water Terminals of the Boston & Albany Railroad. The description will be illustrated by lantern slides.

BUSINESS OF THE MEETING: To ballot on the applications for membership as announced in this Bulletin.

To act on the Resolutions in relation to the work of the Corps of Engineers, U. S. Army, passed at the last meeting. (These resolutions are printed in this Bulletin with the minutes of the April meeting.)

It is expected that the Committee on Revision of the Constitution and By-laws will submit a report at this meeting. (A copy of the Constitution and By-laws as now in force and as proposed is sent with this Bulletin.) S. E. TINKHAM, *Secretary.*

JUNE EXCURSION OF SANITARY SECTION.

JUNE 1, 1910.

On Wednesday, June 1st, it is planned to make an excursion to Hudson, Mass., visiting the sewage disposal works at that place in the forenoon, returning to Wayside Inn, where dinner will be served, and after spending the afternoon in that vicinity, return to Boston, to arrive about 5.00 P. M.

Details of this excursion will be given in a notice sent out about May 20th. It is probable that the party will leave Boston on the 8.09 A. M. train, arriving at Hudson at 9.21; first visit the sewage disposal plant at the Hudson Worsted Co., and then the sewage beds of the Town of Hudson. The train to Wayside Inn will be taken at a little after 12.00, arriving at the Inn a little before 1.00 P. M.

In the vicinity of the Wayside Inn, within easy walking distance, are the Marlboro sewage disposal beds, which can easily be visited in the afternoon by any one wishing to do so.

JOINT MEETING OF ENGINEERS IN BOSTON.

The joint meeting announced in the April *Bulletin* to be held on May 18, has been postponed to Wednesday evening, June 1, 1910, at Huntington Hall, Mass. Institute of Technology.

Mr. Lewis Buckley Stillwell, President of the American Institute of Electrical Engineers will give an address on the subject of Conservation. His paper will cover the subject as follows:

1st—A summary of the present knowledge and data as to rainfall, run-off, etc.

2nd—A summary of all existing legislation bearing on the subject.

3rd—His own views as to the proper direction of progress which Conservation may take.

Arrangements are being made to have engineers of eminent knowledge in this connection take part in the discussion and some have already signified their intention of doing so.

Although the meeting will be under the direction of the A. I. E. E., Boston Section, other societies will co-operate; notably the American Society of Mechanical Engineers and the Boston Society of Civil Engineers.

It is felt that we shall thus not only secure for the last meet-

ing of the season a paper of great importance, but likewise emphasize the new movement of co-operation in the activity of local engineering societies.

CERTIFICATE OF MEMBERSHIP.

Following a suggestion in the address of the retiring President, the Society by vote at the annual meeting instructed the Secretary to have a proper certificate of membership prepared. The suggestion of President Francis was that these certificates should be issued at cost to such members as desired them, and in order to ascertain approximately how many members desire such a certificate, this inquiry is sent out.

It is proposed that the certificate be printed on parchment paper from an engraved plate, (about sixteen by twenty inches,) give the name of the member in full and the date of his membership, and be attested by the President and Secretary under the seal of the Society. On the basis of one hundred certificates, the cost of engraving, printing, engrossing and mailing will be $1.50 for each certificate issued.

The Secretary does not feel that he is authorized under the vote to call upon the Society for the payment of the cost of preparing and printing these certificates without the assurance that there will be sufficient demand for them to reimburse the Society. Members, therefore, who desire a certificate are urged to communicate with the Secretary *at once*, so that as soon as there is reasonable assurance that the one hundred certificates will be called for, an order may be given for the preparation of the plate.

MINUTES OF MEETINGS.

APRIL MEETING OF THE SOCIETY.

Boston, April 20, 1910. — A regular meeting of the Boston Society of Civil Engineers was held at Lorimer Hall, Tremont Temple, at 7.45 o'clock, P. M., President Henry F. Bryant in the chair. Over three hundred members and visitors present, including ladies. The members of the American Society of Mechanical Engineers and of the Boston Section of the American Institute of Electrical Engineers co-operated with this Society in the meeting.

The record of the annual meeting as printed in the April *Bulletin* was approved.

Messrs. Chester S. Allen, Charles L. Brown, Alfred O. Doane, Harry R. Draper, Frederick C. H. Eichorn, Charles Freed, James B. Flaws, George A. Sampson and David Sutton were elected members of the Society.

The Secretary reported for the Board of Government that under authority of the vote passed at the Annual Meeting, referring to the Board with full powers, the question of appointing the special committees of the Society and the selection of members thereof, the following committees had been appointed :

On Excursions : F. H. Carter, R. K. Hale, T. W. Norcross, G. E. Howe and H. K. Higgins.

On the Library : F. I. Winslow, H. T. Stiff, E. R. Olin, J. N. Siner and G. V. White.

On Revision of Constitution and By-Laws : J. R. Worcester, S. E. Tinkham, G. A. Carpenter, C. R. Gow, W. S. Johnson and Leonard Metcalf.

On Joint Committee on Club House : G. A. Kimball, L. S. Cowles and C. S. Clark.

The Board also appointed the following to represent the Society on the Board of Managers of the Association of Engineering Societies, in addition to the Secretary, who is *ex officio* a member : Dexter Brackett, C. W. Sherman, G. A. Kimball, H. P. Eddy, A. T. Safford and J. R. Worcester.

The Secretary also presented and read the report of the Board submitting resolutions in relation to the work of the Corps of Engineers, U. S. Army. After the adoption of an amendment offered by Mr. Howland, the report was accepted and the resolutions were adopted in the following form, two-thirds of the members present voting in the affirmative :

Whereas : The river and harbor work of our country has grown to such proportions and importance as to necessitate an enlargement of the corps of engineers, and

Whereas : A bill, H.R. 7117, introduced April 12, 1909, has been recently reported by the Committee on Rivers and Harbors of the House of Representatives, providing for an increase in the number of officers comprising the Corps of Engineers of the U.S. Army and defining the conditions under which civilian engineers may become eligible for appointment, and

Whereas: The best interest of the government would be served by placing the engineering work in charge of the most competent engineers available, and

Whereas: While we recognize the excellent record of the corps of engineers for faithful and devoted service in connection with public works, we also realize the increasing importance of the civil work under their charge, the development of engineering education and practice in our country during the past twenty-five years and the increasing number of civil engineers who have been specially trained to direct large public undertakings;

Therefore, be it resolved,

First. That the Boston Society of Civil Engineers favors and urges the passage of such laws by Congress as will facilitate the assignment of trained civil engineers to direct civil engineering work conducted by the Corps of Engineers.

Second. That such engineers should have the same relative rank and pay as officers of the Corps of Engineers of the U. S. A. holding similar assignments.

Third. That neither assistant engineers nor officers of the Corps of Engineers should be detailed in charge of river and harbor districts or divisions until they have had at least five years experience on works of engineering construction.

Fourth. That the opportunity for the promotion of civil engineers to positions of authority should be widened.

Fifth. That copies of these resolutions be sent to the Committee on Military Affairs, to the Committee on Rivers and Harbors of the House of Representatives, the corresponding committees of the Senate, and the senators and representatives from the New England states, and the chief of engineers of the U. S. Army.

The President announced that under Article 5 of the Constitution, the resolutions must be adopted at the next regular meeting before they would be operative.

The Secretary submitted the following report for the Board of Government: —

Boston, Mass., April 20, 1910.

To the Boston Society of Civil Engineers: —

At the Annual Meeting on March 16, 1910, it was voted to request the Board of Government to consider the subjects of increase in annual dues and additional grades of membership and to report to the Society.

After due consideration, the Board recommends that certain changes be made in the Constitution and By-laws in order to provide for an additional grade of membership and an increase in annual dues.

The additional grade suggested is that of Junior Member with minimum age of 18 years and a maximum age of 25 years and without

the privilege of voting. On reaching the age of 26, the junior member should automatically become a candidate for full membership and if elected, should pay the balance of the full entrance fee, or be dropped from the rolls.

This new grade is one which is found in the majority of Engineering Societies and meets a demand which is frequently voiced by our members and by prospective members. Such a grade is believed to raise the standard of full membership and as likely to increase the number and therefore the interest of the younger men.

Regarding the proposed increase in dues, we are confronted on one side by the natural preference for a minimum sum and on the other by the various appropriations which with ordinary and necessary current expenditures produce an apparent deficit for the year. Such a deficit existed last year, but was met by the surplus from previous years. This year it is probable that the deficit will be real unless an unexpected amount of advertising should relieve the situation.

The strong feeling existing for new quarters in the proposed Society house, the desire for an independent Journal as manifested by the vote at the Annual Meeting and the natural and proper expansion of our activities, all indicate that the time has arrived for a readjustment of the annual dues.

The following schedule shows both existing and proposed dues and grades which compare very favorably with those shown in a table compiled by the Secretary showing grades and dues for other Societies.

Grades and Fees Proposed for the Boston Society of Civil Engineers.

Grades	Entrance fee	Annual Dues. Resident Present	Resident Proposed	Non Resident Present	Non Resident Proposed
Members	$10 00	$8 00	$10 00	$5 00	$6 00
Honorary Members.	—	—	—	—	—
Associates	10 00	8 00	10 00	5 00	6 00
Junior Members	5 00	—	5 00	—	3 00

It is also recommended that the practice of abating first year dues of new members be discontinued and that future members of sections shall be one of the four grades given above.

For the Board of Government,

S. E. Tinkham, *Secretary.*

On motion duly made and seconded, it was Voted: That the report of the Board of Government on additional grades of membership and increase of dues is hereby accepted, and is referred to the Committee on Revision of Constitution and By-Laws.

The President announced the death of Past-President George Leonard Vose, which occurred on March 30, 1910, and, on motion, the President was requested to appoint a committee to prepare a memoir. The committee appointed consists of Messrs. Alfred E. Burton and George F. Swain.

On motion of Mr. Chase, the thanks of the Society were voted to the officials of the American Sugar Refinery Company for courtesies shown members of the Society this afternoon on the occasion of the visit to the works of that Company.

Mr. Frederick H. Newell, of Washington, D. C., Director of the U. S. Reclamation Service, then gave a very interesting lecture on the "Engineering Work of the Reclamation Service." The lecture was profusely illustrated by lantern slides showing the proposed reservations and the various irrigation works with which the Service has been connected, speaking especially of the Roosevelt Dam, the Yuma Dam, the Gunnison Tunnel, Jackson Lake, the Boise River and Yellowstone, Truckee, Missouri, North Platte and Shoshone enterprises.

Adjourned. S. E. Tinkham, *Secretary.*

MAY MEETING OF THE SANITARY SECTION.

A apecial meeting of the Sanitary Section, Boston Society of Civil Engineers, was held on Wednesday evening, May 4, at the Boston City Club.

Mr. John H. Gregory described the new sewage disposal plant at Columbus, Ohio, illustrating his talk with lantern slides.

Mr. Gregory used as the basis for his talk the article written by him for the American Society of Civil Engineers, but giving special attention to the more important phases of the work. There were several interesting facts brought out by the paper and discussion. Thus, it has appeared in the operation of the works that the septic tanks are probably not a necessary feature, and that plain sedimentation tanks would be as serviceable. One detail which escaped notice in the original designs was provision for taking care of leaves blowing into the septic tanks during the fall of the year. This matter caused some little trouble for a time and was solved temporarily by additional screens in the division chamber just before the effluent from the septic tanks goes to the sprinkling filters.

The paper was discussed by several members of the Section and was of especial interest from Mr. Gregory's intimate association with this work from its beginning, he being directly in charge of both the office and field work.

Forty-five members of the Section were present.

H. K. Barrows, *Clerk.*

CANDIDATES FOR MEMBERSHIP.

Ts be balloted on at meeting May 18, 1910.

As Members.

John Walter Bickford, East Boston, Mass. (b. 1886.) In the employ of the Boston Elevated Railway Company, Department of Elevated and Subway Construction, since March, 1904, as office boy, rodman and transitman. At present transitman on the Cambridge Main Street Subway, Recommended by G. A. Kimball, E. E. Albee, H. E. Whiting and H. B. Alvord.

Frank H. Dillaby, Somerville, Mass. (b. 1875.) Graduate, mechanical engineering course, Norwich (Conn) Academy. Spent nine years in architectural work; with Roebling Construction Company nine years, and now the New England Manager of that company. Recommended by J. R. Worcester, E. E. Savory, W. M. Bailey and C. J. Hogue.

William Joshua Dotten, Winchester, Mass. (b. 1872.) Graduate of Public Schools. Took International Correspondence Course, Scranton, Penn. Summers of '90 and '91, with Percy M. Blake; '92 and '93, with E. Worthington; '94 and part of '95 with John R. Freeman; '95 until April, 1905, again with E. Worthington. From April, 1905 to date, Assistant Town Engineer, Winchester, Mass. Recommended by C. H. Gannett, R. W. Pond, C. T. Main and D. W. Pratt.

Joseph Driscoll, Brookline, Mass. (b. 1873.) Graduate, Mass. Inst. of Technology, Civil Engineering Course, Class of 1896. From July, 1896, to November, 1897, with Boston Transit Commission, Section 6 of Subway; November, 1897, to May, 1899, City of Boston, Street Laying-Out Department of Sewerage Works; and from May, 1899, to date, junior member of firm of James Driscoll & Son, General Contractors. Recommended by H. F. Bryant, A. H. French, F. A. Leavitt and H. A. Varney.

Charles Henry Eglee, Brookline, Mass. (b. 1858). Prepared for Harvard College at The Flushing Institute, Flushing, Long Island, N. Y. Entered construction business at eighteen without college education; the following twenty-five years engaged in designing and constructing water works, principally in New England, as engineer and contractor; at present General Manager of the Ambursen Hydraulic Construction Company, engaged in designing and building concrete steel dams and in all other branches of hydro-electric and irrigation development. Recommended by J. R. Worcester, E. E. Savory, G. A. Kimball and A. H. French.

Howard Lovering Farwell, Boston, Mass. (b. 1886). Graduate, Mechanics Arts High School, Boston, in 1904–05, and also graduate, University of Maine, 1909. At present engaged as a transitman in the Engineering Department of the Boston & Maine Railroad. Recommended by J. P. Snow, F. B. Rowell, T. P. Perkins and R. H. Rich.

Raymond W. Ferris, Columbus, Ohio. (b. 1885.) Graduate, Mass. Institute of Technology, June, 1908, with degree of B. S. in department of civil engineering. Summer of 1908 employed in Engineering Depart-

ment, Mass. State Board of Health, as assistant; October, 1908 to date in employ of Ohio State Board of Health, until February, 1910, as assistant in engineering department and now as assistant engineer. Recommended by Paul Hansen, A. E. Kimberly, W. S. Johnson and R. M. Whittet.

Hubert William Flaherty, Boston, Mass. (b. 1885). Mass. Inst. Technology 1904–1908. Four months transitman with B. R. & E. R. R., 1907; sewer survey, Adams, Mass., 1908; Charles River Dam, 1908: October, 1908 to present time Assistant Engineer with William S. Johnson, employed in constructing and designing water supplies, water purification and sewage disposal. Recommended by W. S. Johnson, X. H. Goodnough, Charles Saville and F. S. Bailey.

Leroy Porter Henderson, Beverly, Mass. (b. 1883). Student at Massachusetts Institute of Technology, Engineering Course, 1902 to 1906. Worked for John H. Proctor, Boston, Mass., in charge of concrete construction. From Nov. 1906 to date, employed by the Charles River Basin Commission, in charge of surfacing of Sects. 3, 4 and 5 of Boston Embankment. Recommended by John N. Ferguson, Henry M. McCue, Arthur E. Tarbell and Roy C. Aiken.

Henry Maine Johnson, Boston, Mass. (b. 1888). Received education in the Boston Public Schools, graduating from the Boston English High School in June, 1906. In April, 1907, started engineering with French & Bryant, Brookline, Mass., working there about nine months. Since April, 1908 employed by the Boston Elevated Railway Company, Department of Elevated and Subway Construction on engineering work at Sullivan Square, Charlestown. Recommended by E. R. Kimball, W T. Wiley, H. F. Bryant and L. S. Cowles.

James Arthur Lockhart, Boston, Mass. (b. 1886.) Educated in Boston Public Schools. Since June, 1907, with Metcalf & Eddy, as draftsman and general assistant in both office and construction work. Recommended by H. P. Eddy, C. W. Sherman, W. T. Barnes and F. A. Marston.

Raymond Washington Parlin, Cambridge, Mass. (b. 1885). Took special course in sanitary engineering, 1903–08, Mass. Institute of Technology; assistant, engineering department, State Board of Health, summer 1906; surveying and in charge of construction, manufacturing waste disposal plant under W. S. Johnson, summer and fall, 1907; designing and resident engineer on Pepperell Water Works, 1908; general designing, construction and investigation on water works, sewers, disposal plants, under W. S. Johnson, 1909–10. Now Assistant Engineer with W. S. Johnson, Boston, Mass. Member, Sanitary Section. Recommended by G. F. Swain, W. S. Johnson, X. H. Goodnough and Charles Saville.

George Edmond Russell, Boston, Mass. (b. 1877). Graduate, Mass. Inst. Technology, 1900, with degree S. B. Assistant Instructor, Mass. Institute of Technology, 1900–01; structural engineer with American Car and Foundry Co., of New York, 1901–1904; instructor, Cornell University 1904–05; Assistant Professor, Civil Engineering, Mass. Institute of

Technology 1907 to date. Recommended by Dwight Porter, H. K. Barrows, L. E. Moore and S. E. Tinkham.

James C. Scorgie, Cambridge, Mass. (b. 1850). Educated in Public Schools and Mechanic Institute, Aberdeen, Scotland; various special courses in engineering in United States. Draftsman on building construction, 1868–1871; office of Harbor Engineer, Aberdeen, Scotland, 1872–73; draftsman on building construction, Cambridge, Mass., 1873–1880; general office work under J. W. Lovering, C. E., Supt. Mt. Auburn Cemetery, Cambridge, Mass., 1880–85; surveyor, Mt. Auburn Cemetery 1885–89; Asst. Supt. Mt. Auburn Cemetery, 1889–1895; and from 1895 to date, Supt. Mt. Auburn Cemetery. Recommended by L. M. Hastings, F. B. Sanborn, J. I. Tucker and J. F. Peterson.

George Paulus Soutar, Lynn, Mass. (b. 1889). Graduate, Lynn High School, 1905; took two years course in surveying at Boston Y. M. C. A. School. Rodman in City Engineer's Office, Lynn, Mass., 1907 to Jan'y, 1910; and at present instrumentman in City Engineer's Office, Lynn, Mass. Recommended by G. I. Leland, E. M. Trefethen, R. H. Sutherland and B. E. Ames.

Ralph Edwin Tarbett, Stoneham, Mass. (b. 1882). Graduate, Mass. Institute of Technology, Sanitary Engineering Course, 1905. Sept. 1905 — Aug., 1906, with Dr. Leonard P. Kinnicutt, of Worcester, Mass., as private assistant; August, 1906 — August, 1909, resident engineer and bacteriologist with the Knoxville Water Co., Knoxville, Tenn. At present assistant engineer with Robert Spurr Weston, Boston. Recommended by William Wheeler, H. P. Eddy, C. W. Sherman and R. S. Weston.

William Otis Wellington, Wollaston, Mass. (b. 1874.) Graduate, Worcester Polytechnic Institute, with degree S. B., 1895; August, 1895, to June, 1909, with the exception of one year, with Bosten Transit Commission as rodman, and as assistant engineer for the last six years. At present with Boston Elevated Railway Co., as Division Engineer in charge of Dana Hill Tunnel, Cambridge, Mass. Recommended by G. A. Kimball, L. L. Street, R. A. Shailer and S. E. Tinkham.

APPLICATIONS FOR MEMBERSHIP.

The following applications for membership have been received and are now before the Board of Government for approval. Members having information which will assist the government in its consideration of these applications are requested to communicate at once with any member of the Board. Communications will be regarded as confidential and for the use of the Board alone.

As Members.

William Walter Bigelow, Waltham, Mass. (b. 1884). Graduated from Massachusetts Institute of Technology, 1907. Assistant in Mechanical Engineering at Inst. of Tech., from 1907 to 1908. From 1908 to date with J. R. Worcester & Co., Boston, estimating and designing on the East

Cambridge Extension of the Boston Elevated Railway. Recommended by C. H. Dutton, H. B. Pratt, Gilbert Small and J. R. Worcester.

John Michael Cashman, Boston, Mass. (b. 1880.) Graduate from Grammar School, Palmer, Mass., June, 1893, and attended the High School for nearly two years. During 1897 took up Surveying and Mapping with the International Correspondence Schools of Scranton, Pa., receiving diploma in November, 1902. Employed by the Draper Company at Hopedale, Mass., 1900 and 1901, and part of 1902; since March, 1902, in the employ of William Wheeler, C. E., Boston, Mass. Recommended by William Wheeler, F. C. Kimball, R. S. Weston and C. W. Sherman.

John Francis Connell, Milton, Mass. (b. 1871). Educated in the public schools of Quincy and Boston. Worked for five years designing and draughting. Worked for Frank B. Gilbreth, general contractor, as draughtsman and Assistant Superintendent of construction at Garvins Falls, N. H., on Manchester Traction, Light & Power Company's Plant; with the City of Boston, Board of Survey, since February 1897; three years as transitman on triangulation and later, engineer in charge of section of Brighton, Mattapan District, and West Roxbury District. Recommended by F. O. Whitney, F. M. Miner, H. C. Mildram and W. J. C. Semple.

Samuel Lucas Conner, Medford, Mass. (b. 1878). Graduated, Delaware College, June, 1897. Employed as rodman and levelman, Penna. R. R. 1899, 1900, 1901; levelman and transitman, P. & R. Railway, 1902; resident engineer on interurban trolley construction in northern part of New Jersey during 1903 and 1904; assistant engineer of the New Jersey Company, a manufacturing corporation of New York City, during 1904, 1905; private work during 1906, 1907; assistant engineer preliminary location Phila. Term. Trans. R. R. Co. during 1908; private work, 1909; and since Sept. 1, 1909, to date instructor in railroad engineering at Tufts College. Recommended by F. B. Sanborn, J. I. Tucker, E. H. Rockwell and L. C. Lawton.

Frederick Charles Dashper, Boston, Mass. (b. 1873). From May, 1899, for 3½ years with R. A. MacBriar, City Engineer & Surveyor, Lincoln, England; Ass't. Engineer, District Engineer's Office, Great Northern R. R., Boston, England, from October, 1892, to February, 1895; Chief Engineer's office, King's Cross, London, England, G. N. R. R. from February, 1895 to May 1901; Assistant Engineer, Gold Coast Railway, West Africa, on construction, May, 1901, to February, 1902; First Assistant Engineer, Cape Gov. Railways, South Africa, on location and staking of a section of thirty-three miles Amabele-Butterworth R. R. from January 1903 to September, 1904; latterly as engineer on the setting out of eight steel and reinforced concrete freight sheds on the Montreal Docks; since August, 1909, with Lockwood, Greene and Co., as Superintendent of the Maverick Mills, East Boston. Student of the Society of Civil Engineers, London, England, for six years by examination. Recommended by E. H. Kitfield, F. E. Shedd, F. P. Spalding and L. D. Thorpe.

Charles Albert Fritz, Manchester, Mass. (b. 1884). Educated in the Manchester public schools. With Raymond C. Allen, Civil Engineer,

since June, 1902, as rodman, transitman, and for the past four years as head of party on location and inspection and installation of electric light conduit; charge of party on property and topographical surveys, and general construction work; charge of location and inspection of pipe lines, buildings and standpipe of the additional supple, Manchester Water Department, and at present party chief in office of Raymond C. Allen, Manchester, Mass. Recommended by Raymond C. Allen, Harrie L. Whitney.

Charles Howard Getchell, West Somerville, Mass. (b. 1885). Graduated from Tufts College in 1908. with the degree of B. S. in Civil Engineering. Has since been engaged in construction, structural drafting, and for the past year has been an assistant with the State Board of Health. Recommended by X. H. Goodnough, Charles Saville, G. V. White and R. M. Whittet.

Harry Rutledge Hall. Somerville, Mass. (b. 1885). Graduate, Civil Engineering Department, Mass. Institute of Technology, June, 1907; with the Penna. Lines West of Pittsburgh, from June, 1907, to February, 1908, as assistant on Engineer Corps of Dept. of Maintenance of Way, Logansport, Ind.; February, 1908, to May, 1908, surveyor and draughtsman with War Dept. of U. S. Government, on construction work at the military academy, West Point, N. Y.; and since June, 1908, assistant in Engineering Dept. of Mass. State Board of Health, Boston, Mass. Recommended by X. H. Goodnough, Charles Saville, R. M. Whittet and G. V. White.

Robert Buck Jeffers, Chelsea, Mass. (b. 1883). Graduated from Tufts College, Department of Civil Engineering, June, 1907, with the degree of B. S. Entered the employ of Adolph Suck, M. E., of Hyde Park, Architect and Engineer of reinforced concrete structures immediately after graduation and has been with him up to the present time excepting from February to June, 1909, when he took a special course at the Massachusetts Institute of Technology. Served as Inspector during the construction of a three story reinforced concrete warehouse in Unionville, Conn., a 6000-ton reinforced concrete coal pocket in Montreal; also served as inspector during partial construction of reinforced concrete garage in Copley Square, Boston, and of a 1000-ton reinforced Concrete Coal pocket at Paterson, N. J. During intervals served as office assistant draughting, designing and preparing specifications. At present is resident engineer at Troy, N. Y., on construction of a 6000-ton reinforced concrete coal pocket; also has charge of completion of a 4000-ton reinforced concrete coal pocket in Albany, N. Y. Recommended by W. E. McClintock, E. H. Rockwell, F. B. Sanborn and J. I. Tucker.

Edward Theobald Murphy, Boston, Mass. (b. 1881). Graduated from Rensselaer Polytechnic Institute in 1905. From October, 1905, to July 31, 1906, U. S. inspector, U. S. Engineer Office, Newport, R. I.; August, 1906—Sept. 30, 1906, U. S. Inspector, U. S. Engineer Office, Philadelphia, Pa.; October 1, 1906, to January 31, 1908, U. S. Inspector, U. S. Engineer Office, Boston; since February, 1908, U. S. Junior Engineer,

U. S. Engineer Office, Boston. Recommended by T. T. H. Harwood, W. J. Fielding, L. H. Bateman and A. M. Lovis.

Jewett Beach Newton, Cohasset, Mass. (b. 1888). Studied civil engineering three years at Harvard College. Since October, 1909, with J. R. Worcester & Co., drafting and designing steel and concrete structures. Recommended by E. E. Pettee, G. H. Brazer, J. R. Worcester and C. C. Turner.

Charles Henry Restall, Melrose, Mass. (b. 1878.) Educated in the public schools of Chelsea and graduated from Tufts College in 1900, with the degree of B. S. in civil engineering. Began work with the Fitchburg R. R. in June, 1900 as a rodman and after lease of that road by the B. & M. R. R., has worked for the latter company as rodman, transitman, bridge inspector and assistant engineer; at present resident engineer in charge of surveys, plans and estimates for elimination of grade crossings, yard improvements and the design of crossing frogs and special track work. Recommended by J. P. Snow, F. B. Rowell, T. P. Perkins and L. C. Lawton.

Walter Franklin Robinson, Arlington Heights, Mass. (b. 1857). Graduate, University of Maine in Civil Engineering. From 1878 to 1886 and from 1889 to 1892 engaged on railroad work; 1892 to 1893 as mining engineer; 1893 to the present time with U. S. Engineers department and since 1896 has been assistant engineer. Recommended by T. T. H. Harwood, W. J. Fielding, J. R. Worcester and S. E. Tinkham.

Fred Ernest Tibbetts, West Somerville, Mass. (b. 1877). Attended the public schools of Somerville 1883 to 1894; also the Bromfield-Pearson Engineering School at Tufts College in 1897–1898. From 1898–1903 with Massachusetts State Survey on topographical and triangulation survey; 1903–1905 in charge of surveys and construction work on Boston and Worcester Street Railway; 1905–1907 on construction work of fortifications U. S. Engineers, Boston Harbor; 1907 on hydrographic surveys Boston Harbor and vicinity; 1908–1909 in charge of triangulation survey for U. S. Fire Control System for fortifications in Boston Harbor and vicinity, and at present on U. S. Intra-Coastal Waterway Survey in charge of work covering the proposed Taunton-Plymouth Canal route. Recommended by T. T. H. Harwood, F. W. Hodgdon, L. H. Bateman and W. J. Fielding.

Philip Bangs Walker, Dorchester, Mass. (b. 1886). Attended Mass. Institute Technology 1903–1907, taking course in civil engineering. Since June, 1907, with Boston Transit Commission, as rodman and rated at present as transitman. While with the Commission has been engaged on experimental work, drafting, line and grade work, inspection, cement testing and in charge of minor construction and repair work. Now inspector on the Beacon Hill Tunnel. Recommended by G. D. Emerson, L. B. Manley, E. S. Davis and W. W. Davis.

Henry Everett Warren, Leicester, Mass. (b. 1871). Graduated from Worcester Polytechnic Institute 1890. In 1891–1892 with Woods & Rugg, Worcester, on Street Railway surveys, also West End Street Railway

Co.; in 1893 transitman with Smith & Brooks, Lowell; 1894 to 1903 resident engineer for Massachusetts Highway Commission; 1903 to present time Junior Engineer with U.S. Engineer Office, Boston. Recommended by T. T. H. Harwood, W. J. Fielding, H. P. Eddy and A. M. Lovis.

Frank Stetson Wilson, Boston, Mass. (b. 1882). Educated at Mass. Inst. of Technology. From 1904 to 1905 with Boston Elevated Ry. Co.; 1906 to Feb. 1, 1910, with N. Y., N. H. & H. R. R.; and at present with B. & M. R. R. His work has been the designing, checking and approving of structural steel, railroad and highway bridges and viaducts. In addition to other railroad work, he has had the designing of overhead cables and supports for the electrification of the New York Division of the N. Y. & H. R. R. and the reinforcing of highway bridges for trolley purposes in Connecticut. Recommended by J. P. Snow, B. W. Guppy, F. B. Rowell and L. S. Cowles.

As Associates.

Burton M. Lawler, Boston, Mass. (b. 1869). Educated at the Mynders Academy, Seneca Falls, N. Y. Since 1896 member of the firm of Lawler Bros., contractors for public works. Recommended by S. E. Tinkham, F. P. Spalding, F. H. Fay and J. E. Stone.

Charles Fox Templeton, Boston, Mass. (b. 1883). For about eight years engaged in selling reinforced steel and kindred products, connected with a concrete contracting company as estimator and superintendent for over a year of this time. At present engaged in the sale of concrete reinforcing steel. Recommended by J. R. Worcester, Benjamin Fox, W. F. Kearns and H. D. Jones.

LIBRARY NOTES.

Recent Additions to the Library.

U. S. Government Reports.

War Department. Annual report, Chief Engineer, 1909.

Trials of scout cruisers Birmingham, Salem and Chester.

State Reports.

Massachusetts Board of Health. Annual Report for 1908.

City and Town Reports.

Metropolitan Park Commission, Annual Report for 1909.

Beverly, Mass., Annual Report of Water Board for 1909.

Haverhill, Mass., Annual Report of Water Commissioners for 1909.

Leominster, Mass., Annual Report of Water Board for 1909.

Louisville, Ky., Report of Commission on Sewerage, 1909.

Little Falls, N. Y., Annual Report of Board of Public Works, 1909.

Newton, Mass., Annual Report of City Engineer, 1909.

New York City. Report on Grade Crossings.

Ware, Mass., Annual Report of Water Commissioners, 1909.

Waltham, Mass., Annual Report of City Engineer, 1909.

Wellesley, Mass., Annual Report of Water Board, 1905–1907. 1908–1909.

Miscellaneous.

Tables of Stresses in Roof Trusses, H. C. Hearne.

Principles of Sewage Treatment; Dunbar and Calvert.

Cost-Keeping and Management Engineering; Gillette and Dana.

American Water Works Association. Advance copy of 1910 convention papers.

Arkansas Association Surveyors and Civil Engineers, Proceedings 1910 meeting.

Weathering of Coal, Parr and Wheeler (Ill. Univ.)

Rate of Formation of CO. in Gas Producers, Clement (Ill. Univ.)

Low Temperature Distillation of Illinois Coal, Parr and Francis (Ill. Univ.)

FREDERIC I. WINSLOW, *Librarian.*

LIST OF MEMBERS.

ADDITIONS.

CHESTER S. ALLEN . . .	83 Federal St., Boston, Mass.
ALFRED O. DOANE . . .	1 Ashburton Place, Boston, Mass.
HARRY R. DRAPER . . .	P. O. Box, 476, Ayer, Mass.
FREDERICK C. H. EICHORN .	550 Massachusetts Ave., Boston, Mass.
JAMES B. FLAWS . . .	8 Higgins Ave., Medford, Mass.
GEORGE A. SAMPSON . .	42 Kirkland St., Cambridge, Mass.
DAVID SUTTON . . .	81 Bushnell St., Dorchester, Mass.

NEW ENGINEERING WORK.

(Engineers and contractors are urged to send in descriptions of their work for publication in the Bulletin. Such notes should be sent to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water Street, Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Park Commission.—No new work is under way and there is none proposed. The construction work on the Alewife Brook improvement and the Mystic Valley Parkway is being completed, the Winthrop sea wall is being repaired and a section at Eliot Circle, Revere Beach at Reservation, is being built.

Charles River Basin Commission.— *Work at Dam and Lock.*—The open shelter, 100 ft. by 30 ft. is three-fourths completed Fences are being erected at the Lock and on the Basin wall at the Dam, and the harbor wall fence is being painted. The grading of the surface of the Dam and laying pipes and conduits for drains and electric wires is in progress, and the spreading of the loam has just started. The stable and boat-house on the Cambridge side of the river are practically finished and occupied.

Boston Embankment.—All the areas are seeded, the bases for the lamp posts are being set, and it is expected that the painting of the fence on the Basin wall will be started very soon.

Watertown —The work above Galen Street Bridge is completed and that below the bridge is very nearly finished.

Metropolitan Water and Sewerage Board. *Water Works.* —Two contracts have just been awarded in the Distribution Department, one for a line of 16-inch pipe in Lynn and another for a pressure tunnel through Waban Hill in Newton, the latter piece of work is to be a masonry lined tunnel, 6 feet 4 inches interior diameter to be connected at the deeper cuts at either end with steel pipe, concrete lined, and this pipe to be connected with the standard 60-inch cast-iron mains. Work is also started on the foundation for a new forty-million-gallon pumping engine at the Chestnut Hill Low-service Pumping Station.

Boston Transit Commision.—Work on the Tunnel under Beacon Hill is proceeding from the shaft at the intersection of Grove and Phillips streets. The shield is nearly under the intersection of Anderson and Revere Streets, at which place the top of the arch is about 35 feet below the surface. The side-drifts are excavated over 200 feet in advance of the shield and a portion of the concrete side-walls are built therein. About one-quarter of the Tunnel has been completed.

Boston Elevated Railway Company.—East Cambridge Extension.—Work is being pushed on the Charles River Bridge. Piers 12 and 13 are substantially completed to the top of the finished granite work about elevation 129. The foundations for Piers 1 and 11 are under construction; excavation going on in the case of the former pier, and pile driving in the case of the latter pier. The false work for the arches is being erected rapidly, material from the old Boston & Maine R. R. freight bridge being used in its construction.

Boston & Albany Railroad. East Boston Terminals. The work of constructing the 1,000,000-bushel grain elevator and the connecting grain conveyor galleries is in progress. The elevator steel is in place to the top of the storage bins, and, also a part of the cupola, and the erection of the remainder is being rapidly pushed. The brickwork for the outside walls is following the steel work closely. The basement and gallery floors within the elevator are already in place. Also the boots, receiving hoppers and elevator casings to the top of the bins. In addition to this, a quantity of the machinery has been delivered and some of it has been placed. The Dry and Dust houses are complete, ready for the installation of the machinery. The conveyor galleries connecting the grain elevator with the various piers, are practically completed with the exception of one or two belts and some of the electric wiring and signal work.

Kneeland Street Yard. A 40-ton electrical travelling crane spanning two tracks and a driveway, is in process of erection. This crane is for the purpose of handling heavy freight in the bulk freight delivery yard.

Allston, Mass. The construction of a brick office and storehouse at Beacon Park Yard is under way. Also the construction of several smaller yard buildings.

Quincy, Mass. The Fore River Ship Building Co. has under construction three 750-ton torpedo boat destroyers for the U. S. Navy and two submarine boats. They also have considerable work under way on a large tank steamer and preliminary work on an Argentine battleship, but the keels for these vessels have not been laid. The turbines and boilers for the destroyers are also under construction.

Brookline, Mass. A reinforced concrete wall 125 feet long and 14 feet high is to be built at the corner of Washington and Beacon Streets. W. C. Collette is the architect and Carl Dodeg the contractor.

City of Boston.—Street Department, Sewer Division. Stony Brook conduit building, between Lotus Place and Forest Hills Square; two sections open; contract work; reinforced concrete conduit 20 ft. by 15 ft., with sanitary sewer on haunch; quick sand foundation.

Concrete conduit at Harvard Street Station N. Y., N. H. & H. R. R., crossing under the tracks, with very limited headroom; peculiar special section; day labor.

Boston, Mass.—The garage on Ferdinand Street, built by the Aberthaw Construction Co., is completed. 55-foot clear span reinforced concrete beams. Interesting as example of long span concrete construction.

Buffalo, N. Y.—The Aberthaw Construction Co., are starting excavations for the Office Building, the Truck Assembly Building, the Motor Testing Building and Garage, for the Pierce-Arrow Motor Car Co. They have completed the Nickel Plating Building, and the Storage Building was completed last year.

Lowell, Mass.—Excavation is nearly completed and concrete piles are being driven at the 12-story cotton storehouse which the Aberthaw Construction Co. is building for the Massachusetts Cotton Mills. The piles go through unusually hard ground and are to be driven to rock; jetting will probably have to be resorted to on some parts of the work. The job is located on Bridge Street, near the center of Lowell.

Cape Cod Canal.—Sandwich, Mass. Work is in progress at both ends of the canal. The entire line consists of eight miles of canal section between tide waters and about five miles of dredged channel in Buzzards Bay. A ladder dredge and a dipper dredge are at work in the Buzzards Bay section opening up an eighteen foot channel to the mouth of the Monument river, which will later be deepened to twenty-five feet. Near Buzzards Bay station bridge, piers have been completed and a Strauss lift bridge of one hundred and sixty feet span is under construction to carry the relocated lines of the Old Colony Railroad across the canal. Work will shortly start on the necessary grading for the approaches to this bridge.

No work has yet been started on the middle section of the canal, but at the Sandwich entrance on Cape Cod Bay two hydraulic dredges are at work taking out about 25,000 cubic yards a day. In advance of their work two revolving scraper bucket excavators are taking off a dry section at the top of the slope on

one side of the canal and forming a dike behind which the hydraulic dredges pump.

The breakwater is under construction to protect the Cape Cod mouth of the canal from storms and littoral drift.

The finished canal, as proposed, will have a minimum bottom width of 100 feet through the center cut with three passing places 200 feet in width, and dredged approach channels 250 feet in width in Buzzards Bay and 300 feet in width in Cape Cod Bay, with a minimum depth at low water of 25 feet.

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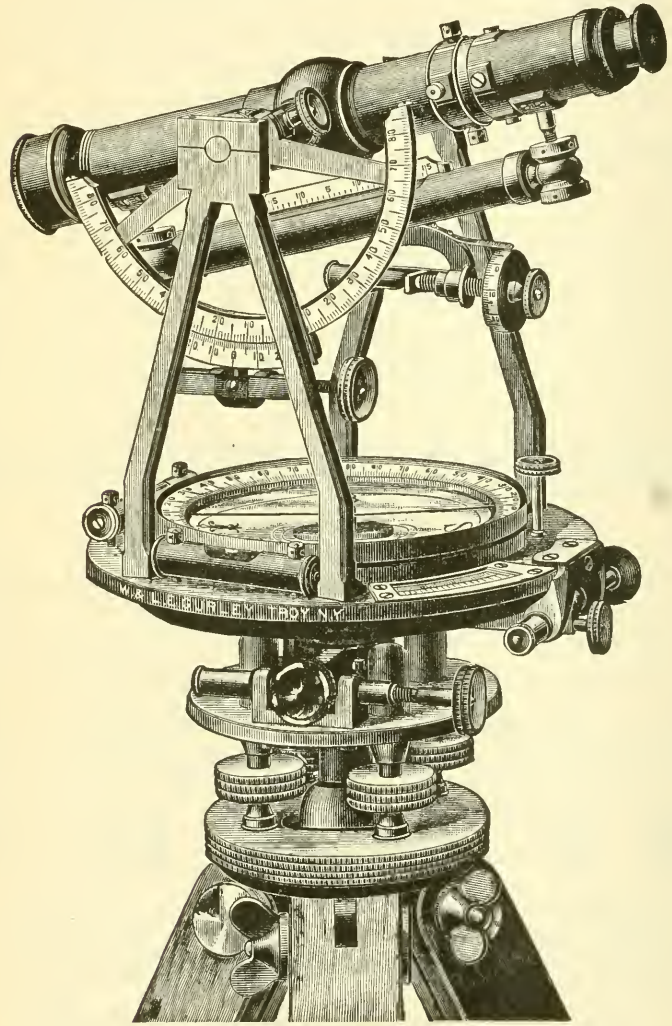

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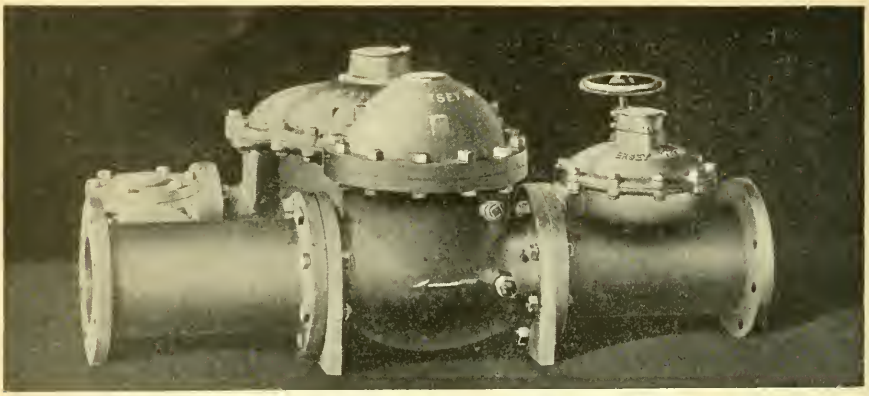

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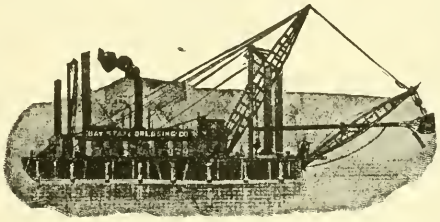

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ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. JUNE 1910 No. 43

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

June 15, 1910. Regular meeting in Chipman Hall at 7.30 P. M. Description of methods of repairing and resurfacing streets by the Lutz Surface Heater.

June 15, 1910. Excursion to Worcester, leave Boston 1.25 P. M. Certificate of Membership. Employment Bureau, Telephone Service. Proposed Society Headquarters and Engineers' Club.

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, June 15, 1910, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. B. B. Colborne, representing the Equitable Asphalt Maintenance Company Co., of Kansas City, Mo., will give a description of the methods of repairing and resurfacing streets and highways by the Lutz Surface Heater.

By the aid of motion pictures the process in complete operation at Washington, D. C. will be shown. A large number of lantern slides will also be exhibited showing the results of the use of the method in many cities of the United States.

BUSINESS OF THE MEETING: To ballot on the applications for membership as announced in this Bulletin.

To act on the amendments to the Constitution adopted at the adjourned meeting held May 25, 1910. (The Constitution as adopted is sent with this Bulletin).

To act on the amendments to the By-Laws presented at the adjourned meeting held May 25, 1910. (The proposed By-Laws as amended are sent with this Bulletin.)

The President urges a full attendance of members at this meeting, so that the proposed changes in the Constitution and By-Laws may be thoroughly considered.

EXCURSION.

There will be an excursion to the grade crossing elimination at Worcester, Mass., on the afternoon of June 15th, 1910. The party will leave on the 1.25 P. M. train from the South Station, and, returning, will arrive in Boston probably not later than 6.30 P. M. Special tickets can be obtained on the train.

It is expected that through the courtesy of the Boston & Albany Railroad, a special car will be provided, which will be connected with a yard engine at Worcester, and run over the work.

The work to be visited includes viaducts, conduits for drainage, bridges, tracks, etc., in addition to the new station.

A description of the work will be found under "New Engineering Work."

Those who intend to take the trip are requested to reply on the enclosed card.

EXCURSION COMMITTE.

CERTIFICATE OF MEMBERSHIP.

The number of requests for certificates of membership which have been received in response to the notice in last month's Bulletin has not been sufficient to indicate a very general desire among the members to possess such a certificate. As stated before it is proposed that the certificate be printed on parchment paper from an engraved plate, (about sixteen by twenty inches,) give the name of the member in full and the date of his membership, and be attested by the President and Secretary under the seal of the Society. On the basis of one hundred certificates, the cost of engraving, printing, engrossing and mailing will be $1.50 for each certificate issued.

Unless a very much larger number express a desire for a certificate before the September meeting, the Society will be asked to reconsider the vote passed at the annual meeting directing the Secretary to prepare certificates of membership.

TELEPHONE SERVICE.

Arrangements have been made for installing a telephone pay station (**Fort Hill, 25765**) in the Society rooms for the convenience of members and others having occasion to visit the rooms. As the Society has been obliged to guarantee a minimum monthly revenue, it will be of assistance if members will use this telephone when requiring pay station service in the vicinity of the rooms.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists will be kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto. Beginning with the September Bulletin notice of all applications filed will be printed in the next Bulletin issued after their receipt, but notices will not be repeated except upon request.

Applications received before the second Wednesday in the month will be printed in the Bulletin for that month.

The Secretary will be glad to receive notice of positions available and of men available, and will promptly answer calls for information from members and non-members wishing to employ assistants.

A member contemplating the securing of a better position although not open for immediate engagement may have his name filed.

To carry this work forward successfully the hearty co-operation is required not only of the members of the Society but of firms and corporations having positions open.

PROPOSED SOCIETY HEADQUARTERS AND ENGINEERS CLUB.

The Joint Commintee on club house and headquarters is sending to all members of the various societies represented, a prospectus of the plan now under consideration and a copy should be in the hands of each member of our Society before the next meeting.

Messrs. Geo. A. Kimball, Charles S. Clark and Luzerne S. Cowles, representing the Boston Society of Club Engineers, have asked the Society to take action and advise the Committee:

1. Of its approval or disapproval of the scheme as a whole.
2. If approved, if the Society can be expected to take space and what rental it can pay therefor.
3. If the Society would join in the establishment of the joint Library and social rooms for the benefit of all its members as outlined in this plan and what additional rental can be expected from this source.

4. If the Society will actively interest itself to secure tenants for the building if the location and style of construction meets with its approval.

The Committee also asks for an official and definite reply before July 1, 1910.

These questions will be considered by the Board of Government on June 15th, and it is hoped that definite action can be taken by the Society at its meeting in the evening.

CANDIDATES FOR MEMBERSHIP.

To be balloted on at meeting June 15, 1910.

As Members.

William Walter Bigelow, Waltham, Mass. (b. 1884). Graduated from Massachusetts Institute of Technology, 1907. Assistant in Mechanical Engineering at Inst. of Tech., from 1907 to 1908. From 1908 to date with J. R. Worcester & Co., Boston, estimating and designing on the East Cambridge Extension of the Boston Elevated Railway. Recommended by C. H. Dutton, H. B. Pratt, Gilbert Small and J. R. Worcester.

John Michael Cashman, Boston, Mass. (b. 1880.) Graduate from Grammar School, Palmer, Mass., June, 1893, and attended the High School for nearly two years. During 1897 took up Surveying and Mapping with the International Correspondence Schools of Scranton, Pa., receiving diploma in November, 1902. Employed by the Draper Company at Hopedale, Mass., 1900 and 1901, and part of 1902; since March, 1902, in the employ of William Wheeler, C. E., Boston, Mass. Recommended by William Wheeler, F. C. Kimball, R. S. Weston and C. W. Sherman.

John Francis Connell, Milton, Mass. (b. 1871). Educated in the public schools of Quincy and Boston. Worked for five years designing and draughting. Worked for Frank B. Gilbreth, general contractor, as draughtsman and Assistant Superintendent of construction at Garvins Falls, N. H., on Manchester Traction, Light & Power Company's Plant; with the City of Boston, Board of Survey, since February 1897; three years as transitman on triangulation and later, engineer in charge of section of Brighton, Mattapan District, and West Roxbury District. Recommended by F. O. Whitney, F. M. Miner, H. C. Mildram and W. J. C. Semple.

Samuel Lucas Conner, Medford, Mass. (b. 1878). Graduated, Delaware College, June, 1897. Employed as rodman and levelman, Penna. R. R. 1899, 1900, 1901; levelman and transitman, P. & R. Railway, 1902; resident engineer on interurban trolley construction in northern part of New Jersey during 1903 and 1904; assistant engineer of the New Jersey Company, a manufacturing corporation of New York City, during 1904, 1905; private work during 1906, 1907; assistant engineer preliminary location Phila. Term. Trans. R. R. Co. during 1908; private work, 1909; and since Sept. 1, 1909, to date instructor in railroad engineering at Tufts College. Recommended by F. B. Sanborn, J. I. Tucker, E. H. Rockwell and L. C. Lawton.

Frederick Charles Dashper, Boston, Mass. (b. 1873). From May, 1899, for 3½ years with R. A. MacBriar, City Engineer & Surveyor, Lincoln, England; Ass't. Engineer, District Engineer's Office, Great Northern R. R., Boston, England, from October, 1892, to February, 1895; Chief Engineer's office, King's Cross, London, England, G. N. R. R. from February, 1895 to May 1901; Assistant Engineer, Gold Coast Railway, West Africa, on construction, May, 1901, to February, 1902; First Assistant Engineer, Cape Gov. Railways, South Africa, on location and staking of a section of thirty-three miles Amabele-Butterworth R. R. from January 1903 to September, 1904; latterly as engineer on the setting out of eight steel and reinforced concrete freight sheds on the Montreal Docks; since August, 1909, with Lockwood, Greene and Co., as Superintendent of the Maverick Mills, East Boston. Student of the Society of Civil Engineers, London, England, for six years by examination. Recommended by E. H. Kitfield, F. E. Shedd, F. P. Spalding and L. D. Thorpe.

Charles Albert Fritz, Manchester, Mass. (b. 1884). Educated in the Manchester public schools. With Raymond C. Allen, Civil Engineer, since June, 1902, as rodman, transitman, and for the past four years as head of party on location and inspection and installation of electric light conduit; charge of party on property and topographical surveys, and general construction work; charge of location and inspection of pipe lines, buildings and standpipe of the additional supple, Manchester Water Department, and at present party chief in office of Raymond C. Allen, Manchester, Mass. Recommended by Raymond C. Allen, Harrie L. Whitney, W. S. Johnson and F. A. Barbour.

Charles Howard Getchell, West Somerville, Mass. (b. 1885). Graduated from Tufts College in 1908. with the degree of B. S. in Civil Engineering. Has since been engaged in construction, structural drafting, and for the past year has been an assistant with the State Board of Health. Recommended by X. H. Goodnough, Charles Saville, G. V. White and R. M. Whittet.

Harry Rutledge Hall. Somerville, Mass. (b. 1885). Graduate, Civil Engineering Department, Mass. Institute of Technology, June, 1907; with the Penna. Lines West of Pittsburgh, from June, 1907, to February, 1908, as assistant on Engineer Corps of Dept. of Maintenance of Way, Logansport, Ind.; February, 1908, to May, 1908, surveyor and draughtsman with War Dept. of U. S. Government, on construction work at the military academy, West Point, N. Y.; and since June, 1908, assistant in Engineering Dept. of Mass. State Board of Health, Boston, Mass. Recommended by X. H. Goodnough, Charles Saville, R. M. Whittet and G. V. White.

Robert Buck Jeffers, Chelsea, Mass. (b. 1883). Graduated from Tufts College, Department of Civil Engineering, June, 1907, with the degree of B. S. Entered the employ of Adolph Suck, M. E., of Hyde Park, Architect and Engineer of reinforced concrete structures immediately after graduation and has been with him up to the present time excepting from February to June, 1909, when he took a special course at the Massachusetts Institute of Technology. Served as Inspector during the construction of a three story reinforced concrete warehouse in

Unionville, Conn., a 6000-ton reinforced concrete coal pocket in Montreal; also served as inspector during partial construction of reinforced concrete garage in Copley Square, Boston, and of a 1000-ton reinforced Concrete Coal pocket at Paterson, N. J. During intervals served as office assistant draughting, designing and preparing specifications. At present is resident engineer at Troy, N. Y., on constrnction of a 6000-ton reinforced concrete coal pocket; also has charge of completion of a 4000-ton reinforced concrete coal pocket in Albany, N. Y. Recommended by W. E. McClintock, E. H. Rockwell, F. B. Sanborn and J. I. Tucker.

Edward Theobald Murphy, Boston, Mass. (b. 1881). Graduated from Rensselaer Polytechnic Institute in 1905. From October, 1905, to July 31, 1906, U. S. inspector, U. S. Engineer Office, Newport, R. I.; August, 1906—Sept. 30, 1906, U. S. Inspector, U. S. Engineer Office, Philadelphia, Pa.; October 1, 1906, to January 31, 1908, U. S. Inspector, U. S. Engineer Office, Boston; since February, 1908, U. S. Junior Engineer, U. S. Engineer ce, Boston. Recommended by T. T. H. Harwood, W. J. Fielding, L. H. Bateman and A. M. Lovis.

Jewett Beach Newton, Cohasset, Mass. (b. 1888). Studied civil engineering three years at Harvard College. Since October, 1909, with J. R. Worcester & Co., drafting and designing steel and concrete structures. Recommended by E. E. Pettee, G. H. Brazer, J. R. Worcester and C. C. Turner.

Charles Henry Restall, Melrose, Mass. (b. 1878.) Educated in the public schools of Chelsea and graduated from Tufts College in 1900, with the degree of B. S. in civil engineering. Began work with the Fitchburg R. R. in June, 1900 as a rodman and after lease of that road by the B. & M. R. R., has worked for the latter company as rodman, transitman, bridge inspector and assistant engineer; at present resident engineer in charge of surveys, plans and estimates for elimination of grade crossings, yard improvements and the design of crossing frogs and special track work. Recommended by J. P. Snow, F. B. Rowell, T. P. Perkins and L. C. Lawton.

Walter Franklin Robinson, Arlington Heights, Mass. (b. 1857). Graduate, University of Maine in Civil Engineering. From 1878 to 1886 and from 1889 to 1892 engaged on railroad work; 1892 to 1893 as mining engineer; 1893 to the present time with U. S. Engineers department and since 1896 has been assistant engineer. Recommended by T. T. H. Harwood, W. J. Fielding, J. R. Worcester and S. E. Tinkham.

Fred Ernest Tibbetts, West Somerville, Mass. (b. 1877). Attended the public schools of Somerville 1883 to 1894; also the Bromfield-Pearson Engineering School at Tufts College in 1897–1898. From 1898–1903 with Massachusetts State Survey on topographical and triangulation survey; 1903–1905 in charge of surveys and construction work on Boston and Worcester Street Railway; 1905–1907 on construction work of fortifications U. S. Engineers, Boston Harbor; 1907 on hydrographic surveys Boston Harbor and vicinity; 1908–1909 in charge of triangulation survey for U. S. Fire Control System for fortifications in Boston Harbor and vicinity, and at present on U. S. Intra-Coastal Waterway Survey in charge

of work covering the proposed Taunton-Plymouth Canal route. Recommended by T. T. H. Harwood, F. W. Hodgdon, L. H. Bateman and W. J. Fielding.

Philip Bangs Walker, Dorchester, Mass. (b. 1886). Attended Mass. Institute Technology 1903–1907, taking course in civil engineering. Since June, 1907, with Boston Transit Commission, as rodman and rated at present as transitman. While with the Commission has been engaged on experimental work, drafting, line and grade work, inspection, cement testing and in charge of minor construction and repair work. Now inspector on the Beacon Hill Tunnel. Recommended by G. D. Emerson, L. B. Manley, E. S. Davis and W. W. Davis.

Henry Everett Warren, Leicester, Mass. (b. 1871). Graduated from Worcester Polytechnic Institute 1890. In 1891–1892 with Woods & Rugg, Worcester, on Street Railway surveys, also West End Street Railway Co.; in 1893 transitman with Smith & Brooks, Lowell; 1894 to 1903 resident engineer for Massachusetts Highway Commission; 1903 to present time Junior Engineer with U.S. Engineer Office, Boston. Recommended by T. T. H. Harwood, W. J. Fielding, H. P. Eddy and A. M. Lovis.

Frank Stetson Wilson, Boston, Mass. (b. 1882). Educated at Mass. Inst. of Technology. From 1904 to 1905 with Boston Elevated Ry. Co.; 1906 to Feb. 1, 1910, with N. Y., N. H. & H. R. R.; and at present with B. & M. R. R. His work has been the designing, checking and approving of structural steel, railroad and highway bridges and viaducts. In addition to other railroad work, he has had the designing of overhead cables and supports for the electrification of the New York Division of the N. Y. & H. R. R. and the reinforcing of highway bridges for trolley purposes in Connecticut. Recommended by J. P. Snow, B. W. Guppy, F. B. Rowell and L. S. Cowles.

As Associates.

Burton M. Lawler, Boston, Mass. (b. 1869). Educated at the Mynders Academy, Seneca Falls, N. Y. Since 1896 member of the firm of Lawler Bros., contractors for public works. Recommended by S. E. Tinkham, F. P. Spalding, F. H. Fay and J. E. Stone.

Charles Fox Templeton, Boston, Mass. (b. 1883). For about eight years engaged in selling reinforced steel and kindred products, connected with a concrete contracting company as estimator and superintendent for over a year of this time. At present engaged in the sale of concrete reinforcing steel. Recommended by J. R. Worcester, Benjamin Fox, W. F. Kearns and H. D. Jones.

APPLICATIONS FOR MEMBERSHIP.

The following applications for membership have been received and are now before the Board of Government for approval. Members having information which will assist the government in its consideration of these applications are requested to communicate at once with any member of the Board. Communications will be regarded as confidential and for the use of the Board alone.

As Members.

Arthur Bradley Barnes, Lowell, Mass. (b. 1886). Graduated from Dartmouth College, 1908; and from Thayer School of Civil Engineering in 1909. Summer of 1908, foreman on construction of dormitory for Dartmouth College; 1909-10, Ass't. Supt. of construction on new gymnasium at Dartmouth College. At present, inspector for the Massachusetts Cotton Mills on twelve-story reinforced concrete cotton storehouse. Recommended by G. F. Hobson, J. A. Garrod, G. A. Nelson and C. R. Marsh.

William Alden Brown, Providence, R. I. (b. 1877). Received education in the public schools of Providence, R. I. Entered the City Engineer's office, Providence, in Sept., 1895; from 1895 to 1898, spent six months in Sewer Department on sewer construction, six months on topographical and stadia work, and the remaining time with Park Department on surveying and general construction work; from 1898 to present date, with Highway department on work relative to street construction, profiles, estimates and grades, also for several years has spent a portion of this time as inspector of asphalt construction and repair work; at present is Assistant Engineer, in the Highway Department. Recommended by T. F. Campbell, I. S. Wood, E. W. Ross and C. F. Janes.

Arthur Noyes Colman, Boston, Mass. (b. 1874). Received education in grammar and high schools, Scituate, Mass. Entered the employ of City of Boston, Surveying Division in 1892; as rodman from 1892, 94; transitman from 1895-99; and in charge of party 1900-06. From 1907 to present time, in charge of Charlestown and East Boston Districts. Recommended by H. C. Mildram, F. M. Miner, F. O. Whitney and W. J. C. Semple.

Hiram Pitcher Farrow, Belmont, Me. (b. 1856). Received education in the public schools of Belmont, Me. Has had charge of the construction of the greater part of the sewerage system at Belfast Me., and has also had to do with designing and construction in other places. His practice covers thirty-two years. His most recent work of importance has been the designing and construction of the new factory of the Coe-Mortimer Fertilizer Company, at Belfast, Me. His principal business is Real Estate Engineering. Recommended by O. H. Tripp, C. E. F. Stetson, William Wheeler and

Thomas Richard Hazelum, Boston, Mass. (b. 1887.) Attended Boston Mechanic Arts and English High Schools. Employed by D. W. Hyde Boston, on field and office work on city survey during 1905; in Town Engineer's office, Brookline as rodman and transitman, March to November, 1906; with Charles River Basin Commission as rodman, instrument-man, inspector and in charge of party, Nov. 1906 to May, 1910; and at present time, with Boston Transit Commission as instrumentman, inspecting in Beacon Hill Tunnel. Recommended by H. A. Varney, A. H. French, F. A. Leavitt and J. N. Ferguson.

Mark Elbridge Kelley, Peabody, Mass. (b. 1884.) Attended Massachusetts Institute of Technology, 1904-1909. Summers of 1904 and 1905, with F. A. Barbour as rod-man and instrument-man at Peabody,

Mass.; summers of 1906 and 07 with F. A. Barbour as inspector on sewerage system installation at Peabody; summer of 1908, timekeeper during summer with F. A. Snow & Co., Boston; inspector and assistant on Power Plant construction from August, 1909 to May, 1910 at Berwick, Me., for Edward A. Buss, Boston; and at present engaged in civil engineering work as assistant to Edward A. Buss, Boston. Recommended by E. A. Buss, R. H. Barnes, F. A. Snow and J. A. Garrod.

Patrick James Malley, Boston, Mass. (b. 1868). Graduate of Boston English High School (advanced class) 1888. Was employed for a short period on surveys for Metropolitan sewers under State Board of Health. In 1889 was appointed in the Engineering Department of Boston on Improved Sewerage surveys and construction. For the past twenty-one years in the City Engineers office, Boston, engaged in municipal engineering work, and now rated as an assistant engineer. Recommended by E. W. Howe, M. T. Cook, C. J. Carven and M. G. Woodward.

William Hazeltine Gage Mann, Penacook, N. H. (b. 1871). Graduate of Dartmouth College, 1893. With Mississippi River Commission, 1893, Berlin Iron Bdg. Works, 1895; N. Y. N. H. & H. R. R., 1896; Boston and Albany R. R. Bridge Department, 1896, 97, 98; chief draftsman, Rutland Canadian Railroad, 1899, 00; O'Brien & Sheehan, Contractors, New York, 1901; Rutland R. R., 1902, 03; with O. H. Tripp, 1908, 09, 10. At present and since 1903 junior partner Lloyd & Mann, Civil Engineers, Concord, N. H. Recommended by O. H. Tripp, W. G. S. Chamberlain, J. B. Russell and M. F. Brown.

Leon Orlando Norwood, Rockland, Me. (b. 1869). Graduate of University of Maine in 1894, degree of B. C. E. Worked first on railroad location and construction and with the American Bridge Company for a year; built a large paper mill in Michigan; four years with the Bangor & Aroostook R. R., mostly on construction work, has done much real estate surveying, and is at present City Engineer of Rockland, Me. Recommended by O. H. Tripp, C. E. F. Stetson, Moses Burpee, and H. S. Boardman.

Wilbur Corthell Otis, Philadelphia, Pa. (b. 1878.) Attended Massachusetts State College, 1898-99 and Lawrence Scientific School, Harvard College, 1899-01. With F. B. Gilbreth, contractor, as timekeeper, 1901; Stone & Webster, as clerk and rodman, 1901-02; E. Harrington & Co., as rodman and transitman, 1902-03; B. & O. R. R. as transitman, 1903; U. S. Government as inspector, 1903-10; at present inspector, Dept. Yards and Docks, U. S. N., Navy Yard, Philadelphia. Recommended by H. R. Stanford, Ralph Whitman, Ephraim Harrington and D. C. Webb.

Horace Whitcomb Oxnard, Houlton, Me. (b. 1878). Graduated from Mass. Inst. of Technology, 1900. With Bangor and Aroostook R. R. from June 1900 to Feb. 1903 as follows: — June 1900, draftsman; Oct. 1901, assistant engineer (field); Nov. 1902, resident engineer (yard improvement), February to July 1903, resident engineer, construction department, Big Four Ry.; July, 1903 to April 1905, assistant engineer, M. of W., Bangor and Aroostook, R. R.; April, 1905 to February, 1906, resident

engineer (tide water terminals), Bangor and Aroostook R. R.; from February, 1906 to November, 1906, with Guerrero Timber and Iron Company, Mexico (Topographic survey in vicinity of Chilpancingo); November, 1906 to March, 1907, Draughtsman, North Coast Ry. (Spokane, Wash); March, 1907 to November, 1907, Chief of Party (location) North Coast Ry.; November 1907 to May, 1909, private practice (1 year as road commissioner); at present Chief Draughtsman, Bangor and Aroostook R. R. Recommended by Moses Burpee, C. E. F. Stetson, O. L. Goodridge and A. E. Burton.

Theodore Parker, Quincy, Mass. (b. 1858). Graduated from Mass. Inst. of Technology, 1881. From 1881 to 1891, with C. B. & Q. R. R.; from 1891 to present date, in City Engineer's Department, City of Boston, Mass. Recommended by E. W. Howe, M. T. Cook, F. H. Fay and S. H. Thorndike.

Arthur Parkman Rice, Everett, Mass. (b. 1879). Graduated from Chelsea High School in 1899, and took first two years of Civil Engineering Course at Mass. Inst. of Technology, 1899–01. Worked for Mass. Highway Commission, 1902–04, as rodman and office work; 1904 to present time, inspector for Mass. Harbor and Land Commission, doing general office work, working on surveys, construction etc. Recommended by C. S. Bryer, L. H. Bateman, E. W. Hadcock and J. N. Ferguson.

Clarence Westgate Rolfe, Malden, Mass. (b. 1882). Educated in the public schools of Malden. From 1902–1906, with Freeman C. Coffin, Boston, as draftsman and transitman; 1907 as draftsman for Charles T. Main, Boston; 1908, on sewer construction at Norwood, Mass. for Lewis D. Thorpe; from 1908–1910 with Walter B. Foster, Hingham, Mass., as draftsman and transitman; and at present draftsman for Metcalf & Eddy Boston, Mass. Recommended by H. P. Eddy, F. A. Marston, W. T. Barnes, C. T. Main and F. I. Winslow.

Hugh Nawn, Boston, Mass. (b. 1888). Entered Harvard University, in 1906 and took four years' course in Civil Engineering. Previous to entering college, obtained practical experience on section 4 of the Washington Street Subway in the capacity of foreman; from this job was transferred to the work of constructing foundation for the Elevated structures between Regent Street and Forest Hills; during summer vacations has worked on High Level Sewer (tunnel) for Metropolitan Sewer, duct lines for Boston Elevated Railway and Cambridge Subway. At present is a student, graduating from Harvard in June, 1910. Recommended by H. J. Hughes, L. J. Johnson, L. L. Street and I. N. Hollis.

Horace Upham Ransom, Boston, Mass. (b. 1885). Prepared for college at Phillip's Exeter Academy, entered Harvard College in 1903, took A. B., 1906, and M. C. E. 1908. Was assistant in applied mechanics and engineering in 1906–07–08, assistant in surveying, 1905-07–08–09, instructor in statics and kinetics, 1909 and at present is a sub-foreman for the Hugh Nawn Contracting Company, and instructor at the Harvard engineering camp, this summer. Recommended by L. L. Street, R. A. Shailer, J. F. Callahan, Jr. and I. N. Hollis.

Chester Emerson Taylor, Palmer, Mass. (b. 1883). Graduate of Tufts College, receiving degree of B. S. in Civil Engineering, 1905.

Assistant to Professor of Civil Engineering at Tufts College in surveying classes, Sept. 1905 to Feb. 1906; transitman on street railway construction at Westford, Mass., July 1906 to Dec. 1906; transitman and assistant engineer on preliminary survey for proposed third-rail road, Boston to Fall River, Dec. 1906 to Feb. 1907; chief of party with B. & A. R. R. on third-track construction, Chatham, N. Y., April 1907 to Dec., 1907; assistant supervisor of track B. & A. R. R., Palmer, Mass., Dec. 1907 to April 1909; and supervisor of track, B. & A. R. R. at Palmer, Mass., from April 1909 to present time. Recommended by E. A. Haskell, L. G. Morphy, W. C. Whitney and Walter Shepard.

As Associates.

Charles Edward Hale, Waverly Mass. (b. 1864). With Norcross Brothers of Worcester, Mass. for sixteen years, part of the time as Assistant Superintendent, and a portion of the time as Superintendent. At present with the Lehigh Portland Cement Company. Recommended by J. R. Worcester, E. E. Savory, E. E. Pettee and G. H. Brazer.

Edgar Knowlton, Rockport, Mass. (b. 1860). Has been connected with the Pigeon Hill Granite Company for nearly thirty years, the last twenty of which he has been their Superintendent, which position he now holds. Recommended by T. T. H. Harwood, E. A. Norwood, C. S. Parsons and S. E. Tinkham.

John Martin Lyons, Brookline, Mass. (b. 1886.) Entered Lawrence Scientific School at Harvard, in September, 1905 and specialized for four four years in Civil Engineering. During the summer of 1908, worked on a reinforced concrete and terra cotta hotel at Sterling, Mass., and since July, 1909 has worked on the Cambridge Subway, having had experience in most all branches of the work. At present is a sub-foreman for the Hugh Nawn Contracting Company on the Cambridge Subway. Recommended by L. L. Street, J. F. Callahan, Jr., L. J. Johnson and W. O. Wellington.

Charles Harry Rogers, Rockport, Mass. (b. 1869). President and Assistant Treasurer of the Rockport Granite Company of Massachusetts, manufacturers and dealers of granite, and contractors in granite construction. Recommended by T. T. H. Harwood, F. W. Hodgdon, S. E. Tinkham and E. W. Howe.

George Herbert Towle, Gloucester, Mass. (b. 1857). Has been superintendent for the past twenty years of the Rockport Granite Company, manufacturers and contractors for all classes of granite construction. Recommended by T. T. H. Harwood, S. E. Tinkham, F. H. Fay and E. W. Howe.

MINUTES OF MEETINGS.

MAY MEETING OF THE SOCIETY.

Boston, May 18, 1910. — A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.40 o'clock p. m.

President Henry F. Bryant in the chair, 92 members and visitors present.

The reading of the record of the April meeting was dispensed with and the record as printed in the May Bulletin was approved.

Messrs. John W. Bickford, Frank H. Dillaby, William J. Dotten, Joseph Driscoll, Charles H. Eglee, Howard L. Farwell, Raymond W. Ferris, Hubert W. Flaherty, Leroy P. Henderson, Henry M. Johnson, James A. Lockhart, Raymond W. Parlin, George E. Russell, James C. Scorgie, George P. Soutar, Ralph E. Tarbett and William O. Wellington were elected members of the Society.

The Secretary read communications from the Civil Engineers' Society of St. Paul, Minn., and from the Louisiana Engineering Society, transmitting resolutions passed by these societies in relation to bills now pending before Congress concerning the status of civilian engineers in the U. S. Army. On motion of Mr. Thompson the Secretary was directed to acknowledge the receipt of the communications and transmit to these societies the actions taken by this Society.

The communication from the Louisiana Engineering Society also contained resolutions advocating the City of New Orleans as "the logical point at which to hold a Universal Exposition in 1915, in celebration of the opening of the Panama Canal," and urging this Society to adopt similar resolutions. On motion of Mr. Johnson it was voted to lay these resolutions on the table.

The consideration of the resolutions, in relation to the work of the Corps of Engineers, U. S. Army, passed at the last meeting and printed in the May Bulletin with the minutes of that meeting was then taken up. After a discussion by Mr. A. H. Howland of the advisability of passing the resolution and the defeat of a motion to indefinitely postpone action, the resolutions were adopted by a rising vote, 47 members voting in the affirmative and one in the negative.

The time for the literary exercises having arrived, as required by the by-laws, the President introduced Mr Luis G. Morphy, who gave a very interesting description of the East Boston Deep Water Terminals of the Boston & Albany Railroad Company, which was very fully illustrated by lantern slides. Mr. John B. Russell, who was a resident engineer on the work, followed, with some interesting details.

The business of the meeting was then resumed. Mr. J. R. Worcester, chairman on the Committee on Revision of the Con-

stitution and By-laws, submitted the report of that Committee as printed and sent out with the May Bulletin.

Mr. Worcestor moved that the amendments, as printed, be adopted. Pending the consideration of this motion, on motion of Mr. Weston, the Society voted to adjourn to next Wednesday evening at the Society rooms for the discussion of the proposed amendments.

S. E. Tinkham, *Secretary.*

Boston, May 25, 1910.— Pursuant to an adjournment of the regular May meeting, the Society met this evening at 7.45 o'clock in its rooms, 715 Tremont Temple.

President Henry F. Bryant in the chair, 22 members being present.

The President announced that the motion before the meeting at the time of adjournment, was on the adoption of the amendments to the Constitution and By-laws as reported by the Committee.

On motion of Mr. Higgins, the Society resolved itself into a Committee of the Whole for the consideration of the revision of the Constitution and By-laws.

At 9.20 o'clock the Committee rose and reported back a draft of a revised Constitution. On motion of Mr. Worcester, it was voted to adopt the Constitution as reported by the Committee of the Whole, eighteen members voting in the affirmative and one in the negative. The Constitution, as adopted, is sent with the June Bulletin.

The meeting again resolved itself into a Committee of the Whole for the consideration of the proposed changes in the By-Laws.

At 10.50 o'clock the Committee rose and reported to the Society a new code of By-Laws. On motion of Mr. Worcester, it was voted to accept the report of the Committee of the Whole.

The report of the Committee is sent with the June Bulletin.

At 10.55 o'clock it was voted to adjourn.

S. E. Tinkham, *Secretary.*

JUNE EXCURSION AND MEETING OF THE SANITARY SECTION

The June Excursion of the Sanitary Section, Boston Society of Civil Engineers, was made on June 1st to Hudson, Mass., where the party visited the wool scouring waste disposal plant of

the Hudson Worsted Company, also going through the mill itself. A special car was then taken to the municipal sewage disposal plant of the Town of Hudson and some time spent in looking this over.

The train was then taken to Wayside Inn, where dinner was served and the regular meeting of the Section held. At this meeting it was voted as follows:

"To extend to the Hudson Worsted Company, to the Commissioners of Public Works of the Town of Hudson, and to the Boston & Maine R.R., the thanks of the Section for courtesies extended on the occasion of the excursion of the Section on June 1, 1910."

The party returned to Boston, reaching there about five o'clock.

About twenty-five members participated in this excursion and it was thoroughly enjoyed by all, especially the afternoon at Wayside Inn.

H. K. Barrows, *Clerk.*

LIBRARY NOTES.

Recent Additions to the Library.

U. S. Government Reports.

Railway Statistics, 1909.

Surface Water Supplies, Barrows and Bolster.

State Reports.

Pennsylvania. Annual report of Water Supply Commission. 1909.

City and Town Reports.

Brockton, Mass. Annual Report of City Engineer and Sewerage Commissioners, 1909.

Chicago, Ill. Report of Streams Examination, A. R. Reynolds.

Chicago, Ill. Reports on Drainage Canal, Miscellaneous.

Erie, Pa. Annual Report of Commissioner of Public Works, 1909.

Fitchburg, Mass. Annual Report of City Engineer, 1909.

Madison, Wis. Annual Report of Water Department, 1909.

Marlboro, Mass. Annual Report of Water Commissioners, 1909.

Minneapolis, Minn. Report on Water Supply, by Rudolph Hering and others.

Northampton, Mass. Annual City Report, 1909.

Providence, R. I. Quarterly Repot of Department of Public Works, March, 1910.

Springfield, Mass. Annual Report of Water Commissioners, 1909.

Woburn, Mass. Annual Report of Water Department, 1909.

Woonsocket, R. I. Annual Report of Water Commissioners 1909.

Miscellaneous.

National Fire Underwriters. Reports on Dallas, El Paso, Fort Worth and Galveston, Texas; Los Angeles, Cal.; Newburyport, Mass.; Passaic, N. J.; San Antonio, Texas; San Diego, Cal.; Seattle and Tacoma, Wash.; and Waco, Texas.

Heat Transmission, Clement and Garland (Ill. Univ.)

Victoria Institute of Surveyors, Transactions and Proceedings, 1900--1909.

Life of John A. Johnson, by Day and Knappen.

Steam Turbines, Lester G. French.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK.

(Engineers and contractors are urged to send in descriptions of their work for publication in the Bulletin. Such notes should be sent to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water Street, Boston, before the first of each month.)

Commonwealth of Massachusetts. — Metropolitan Park Commission. — *Alewife Brook Purification.* — Contract has been let for work of excavating new channel to Alewife Brook, and work is now in progress.

Revere Beach Reservation. — Work of constructing about 1,000 feet of concrete sea wall at the southerly end of the Reservation is now in progress.

General. — Work of reconstruction and repairs of roadways and treatments for dust suppression is in progress throughout the Metropolitan Park District.

Metropolitan Water and Sewerage Board. — *Water Works.* — *New 60-inch Low Service Main for Increasing Capacity of Weston Aqueduct Supply Mains.* — Contracts for the construction of the portion of this line that is to be built at present have been awarded and cover a total length of about 20,200 lin. ft., extending from Commonwealth Avenue at Prince Street in Newton, through Commonwealth Avenue to Grant Avenue, along the line of the old Cochituate Aqueduct to Commonwealth Avenue at Lake Street in Brighton, and thence through Commonwealth Avenue and Chestnut Hill Avenue in Brighton, connecting at this point with the existing low-service distribution mains.

Work was begun on Section 8 at the lower end of this line in August, 1909, and about 6800 lin. ft. of the total length of about 8100 lin. ft. of 60-inch cast-iron pipe line included in the contract has been laid. Work is now in progress on this section in rock trench at the corner of Commonwealth Avenue and Chestnut Hill Avenue in Brighton, and in the land of the Commonwealth north of Commonwealth Avenue near the Boston-Newton boundary line.

Work has just been begun on Section 7 at the corner of Commonwealth and Grant Avenues in Newton. This contract includes about 900 lin. ft. of 60-inch cast-iron pipe line, 500 lin. ft. of 80-inch steel pipe line protected with concrete on the outside and lined with cement mortar on the inside, and a rock tunnel about 1900 feet in length, 6 ft. 4 in. in diameter inside the concrete lining.

It is expected that work will be in progress early in the month under the contract for Section 6, which includes 8800 lin. ft. of 60-inch cast-iron pipe line.

New 16-inch Northern High Service Main for Reinforcing Existing Pipe line used for supplying water to the Town of Swampscott. — Work on the contract for this pipe line, which includes about 4700 lin. ft. of 16-inch cast-iron pipe line, is now in progress on Ocean Street in Lynn.

New 16-inch Northern Extra High Service Force Main in Arlington. — Work under the contract for extending the 16-inch force main from Massachusetts Avenue at Robbins Road to the Arlington Standpipe, a distance of about 3800 feet, is now in progress in Robbins Road, near Gray Street.

Relocation of 48-inch Low-Service Mains, Central & Harvard Squares, Cambridge, for Subway Construction. — At Central Square a new 48-inch line has been constructed to replace a portion of the existing main for a length of about 1200 feet, and will be connected to the existing main and put into service about June 1st.

At Harvard Square the northerly portion of the new main which is to replace a portion of the existing main has been laid. A feature of special interest in connection with this work is the 48-inch spherical joints in the pipe line, to allow for any settlement that may occur where the pipe line leaves the subway roof.

Charles River Basin Commission. — *Work at Dam.* — The work on Contract No. 1, which amounts to over a million dollars, has been entirely completed; and the work of placing loam on the the up-river section has also been completed.

Harbor and Land Commission.—South Boston Flats:— The dredging of the berth on the easterly side of the Commonwealth Pier is in progress.

Plans are being prepared and studies are being made for the proposed Fish Pier, the work of making borings and driving test piles is substantially completed.

Lynn Harbor:—The dredging of an anchorage basin for yachts is substantially completed.

Neponset River:—The dredging of the channel from Neponset Avenue Bridge to Milton Mills is progressing rapidly, the dredge is now at work above the Granite Bridge.

Weymouth Fore River:—The dredging of the channel in the upper portion of the river near Braintree Bridge is in progress.

Plymouth Harbor:—The dredging of the Plymouth Cordage Company is in progress.

Sesuit Harbor, East Dennis:—The contract for extending the stone jetty has been let and work will be commenced shortly.

Buck's or Mill, Creek, South Chatham:—The contract for building stone jetties, excavating a new entrance channel and closing the the old channel with a dike has been let and work will be commenced shortly.

Herring River, Harwich:—The work of strengthening and extending the stone jettties is in progress.

West Falmouth Harbor:—The dredging of the entrance channel and anchorage basin is substantially completed.

Menamsha Creek, Chilmark:—The dredging of the channel and anchorage basin, the construction of the training spur and the strengthening of the stone jetties is in progress.

Sippican Harbor, Marion:—Bids for removing rocks near Long Wharf have been received and work will probably be commenced shortly.

Cuttyhunk Harbor:—The dredging of the entrance channel is in progress.

The construction of a stone jetty at the mouth of the Ipswich River and the building of a breakwater and the dredging of anchorage basin and channel at Cohasset Harbor are contemplated.

City of Boston. — Street Department. — Sewer Division. — *Work in Progress.* — New Gates, Moon Island. Stony Brook, 20 ft. reinforced concrete, section across Parkway at Washington Street, Forest Hills.

Work Contemplated. — Roslindale Branch, Stony Brook, along N. Y., N. H. & H. R. R. tracks between Aldrich Street and Bellevue Station.

New Stony Brook section at Forest Hills, between Morton Street and Walk Hill Street.

Highway Division. — *Work in Progress.* — Washington Street, between Green Street and Walk Hill Street, West Roxbury, granite block paving on concrete base. The granite block used is the special block, five inches deep, to lay with joints not exceeding one-half inch in width.

Aldrich and Colberg Avenue, off Belgrade Avenue, macadam construction, dish gutter, (granite blocks) and artificial stone sidewalk.

Farquhar Street, off South Street, macadam construction, edgestone and artificial stone sidewalks.

Hyde Park Avenue from Ashland Street to Hyde Park Line, macadam construction, and crushed stone sidewalks, edgestone.

Cambridge Street, Warren Street to Union Square, Brighton, macadam resurfacing, Tarvia penetration.

Whitman, Wentworth, Wells Avenue, Corbet and Kingsdale Streets all macadam, are now under construction, in Dorchester.

North Market Street, granite block, on concrete base, pitch and pebble joints.

Work Contemplated. — Charles Street, Boylston Street across Beacon Street, special granite block on concrete base, pitch and pebble joints.

Heath Street, Dudley Street and Longwood Avenue, in Roxbury, and Geneva Avenue, in Dorchester, vitrified brick on concrete base.

Boston Elevated Railway Company.—East Cambridge Extension. — *Bridge across Charles River.* — Piers 11, 12 and 13 are completed and Pier 1 is well under way. The piles for the falsework for the entire structure have been driven, and the superstructure of the falsework for Span 10 is about ready. The work on the temporary bridge is about half done. The piles pulled from this bridge have come out in most excellent condition, showing no signs of any worms. Holbrook, Cabot and Rollins, Contractors.

Main-Street Subway.— Subway in Main Street is practically completed, a length of nearly one mile. Dana Hill tunnel is completed from Bay Street shaft westerly and the shield is moving rapidly towards the east. Last week the record was again broken with 59 ft. of subway constructed in five days which would be at the rate of 70.8 ft. per week.

Boston Transit Commision.— Work on the Tunnel under Beacon Hill is proceeding from the shaft at the intersection of Grove and Phillips Streets. The shield is about under Myrtle Street, at which place the top of the arch is about 48 feet below the surface. The side-drifts are excavated about 200 feet in advance of the shield and a portion of the concrete side-walls are built therein. About one-third of Section 1 of the tunnel has been completed.

New York, New Haven & Hartford Railroad.—Worcester.— *Elimination of Grade Crossings.*— Reinforced concrete arches over Hermon, Madison and Green Streets have been completed and permanent tracks for this company have been laid between South Worcester and Washington Street. The steel work of the four-track bridge over Washington Street has been completed and the concrete floor is now being constructed. At Southbridge Street the old double-track rivetted-truss bridge of the Boston & Albany R. R. and the single track pin connected truss

bridge of the Norwich & Worcestsr R. R. are now being removed. These structures will be replaced by a four-track rivetted-truss bridge of 161 ft. span, the total weight of metal amounting to 1100 tons.

The old solid fill viaduct connecting the New Haven and Boston & Maine roads has been removed as far north as Front Street and will be replaced by a five-track steel viaduct. Foundation work for this viaduct, involving the reconstruction of a 20 ft. conduit carrying Mill Brook is now in progress

Foundations for a two-story steel frame building 160 ft. by 25 ft. for use of the Adams Express Co. have been completed.

Temporary tracks between Savin Hill and Neponset have been put into operation and masonry and filling are now being put in for track elevation for the elimination of the grade crossing.

On the second track Walpole to Framingham the grading and masonry work is practically completed.

Lawrence, Mass. — The Aberthaw Construction Co. is beginning the erection of temporary office on their contract for the Pacific Mills at Lawrence. L. E. Locke, of Lawrence, has the general contract for the foundations, brick and timber work. The Pacific Mills have placed with the Aberthaw Construction Co. contract for the concrete floors and columns in the following buildings : —

Printing Building, 2 floors, 85 by 720 ft.

Dyehouse and Bleachery, 251 by 994 ft.

Coal pocket. 122 by 152 ft.

Finishing Building, 90 by 600 ft., 3 floors, flat slab construction. This is perhaps the largest job of concrete floor work that has been let in New England, and is a good example of the use of this material in a building where wet processes will be carried on and timber would be subject to rotting. From a construction point of view, there is nothing unusual in the equipment or handling of material in the early part of this job.

Lowell, Mass. — At the Massachusetts Cotton Mills, Bridge Street, the Aberthaw Construction Co. is just starting the foundation work above the concrete piles on one end of the twelve-story cotton storehouse. Raymond piles are being used, and on top of these is the reinforced concrete foundation work supporting the columns and walls. An unusually well-laid out-handling plant for concrete will be in operation within a week or two. The handling of the forms and concrete on this job is worth studying.

Newburyport, Mass. — Chain Bridge — The four cables have at last been gotten into place in an acceptable condition. Great difficulty was met with in getting these cables into position on account of their construction, the wires of the cable having been all laid in a continuous length, then wound their entire length before erection, that is, being entirely completed on the ground. When these cables were pulled up over the piers the wrapping wire telescoped in many cases and one cable had to be

cables of that style of coustruction have been completed before taken down and rewound. This is the first instance known where being erected. The floor beams are all in position and the stiffening trusses bolted up, and it is expected the bridge will be completed by the middle of June.

Westerly, R. I. — The Aberthaw Construction Co. is building a reinforced concrete standpipe, 40 ft. in diameter, 70 ft. waterhead. This standpipe has tile dome Gustavino construction, with tile lantern. The whole design is attractive from an architectural point of view. Plain round bars are being used for reinforcement. Details for holding these are interesting, and steel forms are being used on the concrete work. Samuel M. Gray of Providence, is the engineer.

Boston. — Work will commence on July 1st on a four-story reinforced concrete automobile storehouse at 915--921 Boylston Street.

An interesting part of the contract is that the two side walls and the floor slab adjoining each 100 feet in length are supported on a cantilever system, the pieces being 11 feet distant from side walls. Benj. Fox, Inc. of Boston, is the contractor.

East Watertown. — Work is just being conpleted on a reinforced concrete addition to the present factory of the Hood Rubber Company. Benj. Fox Inc. of Boston, is the Contractor.

Welland, Ontario.— Benj. Fox, Inc. has started on the construction of the Warehouse 270 ft. long by 60 ft. wide for the Plymouth Cordage Co. The entire building being carried on piers and system of reinforced concrete beams. The building is to be completed in two months.

Buffalo, N. Y. — At the Pierce-Arrow Motor Car Co.'s plant, the Aberthaw Construction Co. is starting the foundations for the addition to the Office Building, concrete is being run in the Truck Assembly Building, the Motor Testing Building and Garage, beside miscellaneons work about the plant.

Buzzards Bay. — Cape Cod Canal Bridge for N. Y., N. H. & H. R. R. — The piers for this bridge have been completed, as well as the trestle approaches, except finishing some of the ties, and The Pennsylvania Steel Co. are at work erecting a Strauss roller lift on them. Holbrook, Cabot and Rollins, Contractors.

Connecticut River. — Saybrook--Lyme Bridge. — The dredging for all the piers is nearly completed, the piles in two of the piers have been driven and sawed off, and the first caisson is ready for the masonry to be laid in it. Holbrook, Cabot and Rollins, Contractors.

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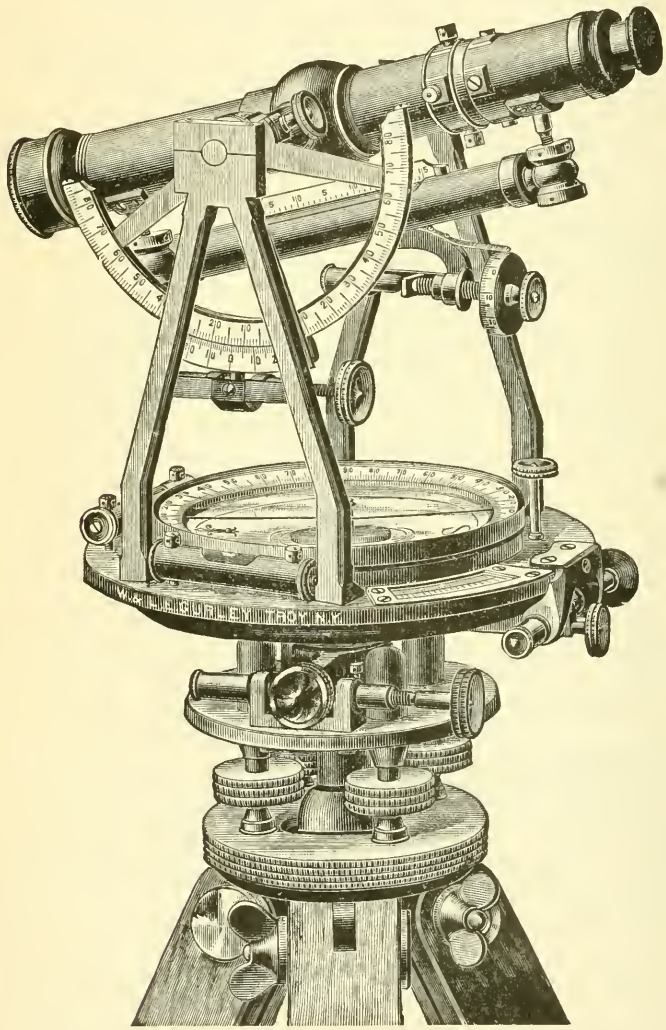

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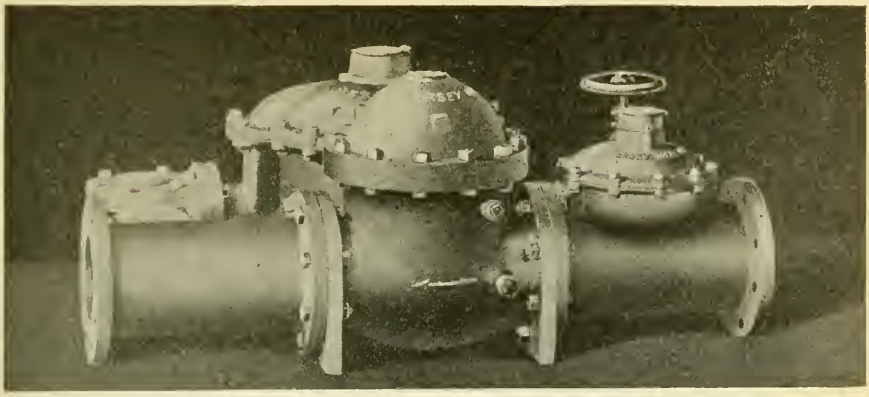

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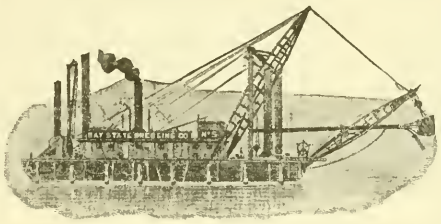

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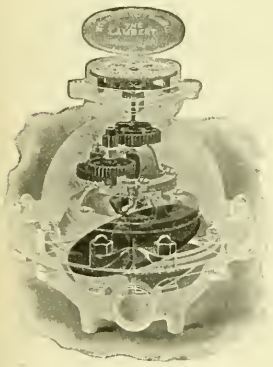

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ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. SEPTEMBER, 1910 No. 44

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

September 21, 1910. Regular meeting in Chipman Hall at 7.30 P. M. Construction Work at Panama Canal by Mr. L. K. Rourke, C. E.

September 21, 1910. Excursion to Lowell and Lawrence, leave Boston at 1 P. M. Subjects of Papers to be read at October and November meetings of the Society. Employment Bureau, Telephone Service.

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, September 21, 1910, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. Louis K. Rourke, Superintendent of Streets of Boston and late Assistant Engineer in Charge of Construction, Central Division, Panama Canal, will speak of the work at the Canal with special reference to the organization and methods of construction. The talk will be illustrated by lantern slides.

BUSINESS OF THE MEETING: To elect two directors to fill vacancies occasioned by the adoption of the new Constitution at the June meeting. A vacancy exists in each of the terms expiring in March, 1911 and March 1912.

S. E. TINKHAM, *Secretary.*

EXCURSION.

There will be an excursion to the cotton storehouse of the Massachusetts Cotton Mills at Lowell, Mass., on the afternoon of September 21st., 1910. Members will please meet at the North

Station in time to purchase their own tickets, taking the 1.00 train for Lowell.

This building is a twelve-story reinforced concrete structure designed by Lockwood, Greene & Co., of 93 Federal St., Boston. It is located on Bridge Street, just off the main square at Lowell, Mass. The building is being constructed by the Aberthaw Construction Co. The structure is carried on Raymond concrete piles, above which are reinforced concrete foundations. Steel columns extend to the seventh floor, above which the floors are carried on concrete columns. The floors are of flat slab mushroom construction with low stories. The building is at present above the fifth floor. Arrangements are made to unload stone and sand from the cars direct into the mixers. Steel elevator towers feed the concrete, which is taken in industrial cars and put in place. Corrugated iron forms are being used in place of boards for the floor centering. The novelties in handling the type of forms and the style of building are enough to make the work interesting.

From Lowell, cars will be taken to Lawrence, a very attractive ride of about forty-five minutes down the Merrimac River. At Lawrence, the Aberthaw Co. is building reinforced concrete floors for the new Print Works of the Pacific Mills, for which L. E. Locke is the general contractor. Their work at present is on the 600-foot Print Building,—concrete floors, brick walls, concrete columns. The second floor has some pits for various machines, and a large amount of socket hangers for supporting machinery, shafting, etc. This is a typical large reinforced concrete job. The proposed Print Works are very large.

EXCURSION COMMITTEE.

OCTOBER AND NOVEMBER MEETINGS.

The following preliminary announcement is made of papers to be read at the October and November meetings of the Society:

October 19, 1910. — A joint meeting conducted by this Society with the co-operation of the American Society of Mechanical Engineers and the American Institute of Electrical Engineers Subject, "An account of the Destruction of Cartago, Costa Rica by the Earthquake of May 4, 1910."

Prof. Thomas A. Jaggar, Jr., will speak of the geological features and Prof. Charles M. Spofford will discuss the effects of the earthquake on different classes of structures. The lectures will be illustrated with views of Cartago taken soon after the earthquake and by photographs of other Central American scenes.

NOVEMBER 16, 1910. — "Methods and Costs of Construction of Slow Sand Purification Plant for the new Springfield, Mass. Water Works," by Charles B. Gow.

TELEPHONE SERVICE.

A telephone pay station (**Fort Hill, 25765**) has been installed in the Society rooms for the convenience of members and others having occasion to visit the rooms. As the Society has been obliged to guarantee a minimum monthly revenue, it will be of assistance if members will use this telephone when requiring pay station service in the vicinity of the rooms.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

Applications received before the second Wednesday in the month will be printed in the Bulletin for that month, but will not be repeated except upon request.

The Secretary will be glad to receive notice of positions available and of men available, and will promptly answer calls for information from members and non-members wishing to employ assistants.

To carry this work forward successfully the hearty co-operation is required not only of the members of the Society but of firms and corporations having positions open.

MEN AVAILABLE.

1. Member. Graduate of Cornell University in civil engineering, 1907. Two years experience in municipal engineering and

now associate editor of a technical journal. Desires work in the manufacturing field in the sales, publicity or executive department of some concern making construction equipment, supplies or materials. Prefers the east or middle states for location.

2. Technical training at Tufts College and Institute of Technology. Over twenty years experience in municipal engineering and topographical surveying; has had charge of the laying out and engineering construction of large private estates.

3. Member. Graduate of Harvard in 1896, specializing in civil engineering. Eight years experience in water works construction and water supply investigations and six years in mechanical engineering work with special reference to steam turbines and other turbo machinery.

8. Draftsman. Seven years on railroad construction in Central and South America, and one year on B. &. A. R. R. construction.

13. Desires position as transitman or rodman. College graduate, and took sanitary engineering course at Institute of Technology.

14. Technical training at Lawrence Scientific School and at summer school. Some experience in land surveying. Age 32.

15. Desires position as transitman on construction work. No experience. Technical training, two years at Dartmouth and two at Institute of Technology.

16. Member. Now in private practice, would like salaried position as structural designer. Has had sixteen years experience in railroad work, including bridge and other structural designing, and four years in U. S. service at Panama as designer directly under Division Engineer.

APPLICATIONS FOR MEMBERSHIP.

[September 14, 1910.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to examine this list of applicants and to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidate, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as references, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider these applications until the expiration of twenty (20) days.

Bessey, Roy Frederick, Worcester, Mass. (Age 22, b. Brooklyn, N. Y.) Graduated from high school in January, 1906. In 1906 entered employ of New York Central Railroad and has since been with that company as rodman, draftsman and transitman on maintenance and construction work; 1909 on Worcester Improvement of the B. & A. R. R. Refers to H. B. Alvord, H. K. Barrows, C. B. Breed and H. B. Luther.

Bonnemort, Charles Judson, Hyde Park, Mass. (Age 31, b. Dedham, Mass.) Graduated from Mass. Inst. of Technology, 1902. June, 1902 to Dec., 1907 with N. Y. C. & H. R. R. R. Co., as transitman, bridge and concrete inspector, assistant superintendent of track and assistant superintendent of bridges. Dec., 1907 to Jan. 1910 with B. & A. R. R. as assistant superintendent bridges and buildings; Jan., 1910 to date with B. & A. R. R. as assistant engineer, Boston Division. Refers to E. A. Haskell, L. G. Morphy, Walter Shepard and W. C. Whitney.

Bruce, Herbert Putnam, Lynn, Mass. (Age 24, b. Lynn, Mass.) Graduated University of Maine, Civil Engineer. Four years summer work, City Engineer's Office, Lynn, Mass. At present assistant, City Engineer's Office, Lynn, Mass. Refers to G. I. Leland, R. E. Smith, G. P. Soutar and E. M. Trefethen.

Clukas, George Martin, Cambridge, Mass. (Age 51, b. Cambridge, Mass.) 1887 to 1903 executive clerk of street department of Cambridge ; 1903 to 1909 superintendent of streets of Cambridge and commissioner of Boston and Cambridge Bridges 1904 to 1909 ; at present chairman of Commission for the development and improvement of the streets of Cambridge and New England Representative of the Pennsylvania Portland Cement Co. of New York City. Refers to H. P. Eddy, D. A. Harrington, L. M. Hastings and F. A. Snow.

Douglass, Walter B., Arlington, Mass. (Age 40, b. Lowell, Mass.) Graduate, Mass. Inst. of Technology, 1892. From June, 1892 to 1897, draftsman and later chief engineer, Norton Iron Co., and its successor

the New England Structural Co., and since 1897 general manager and vice-president, N. E. Structural Co., Boston and Everett, Mass. Refers to F. H. Fay, H. W. Fitts, Leonard Metcalf, G. F. Swain and J. R. Worcester.

Hunt, William Francis, Weymouth Heights, Mass. (Age 39, b. Weymouth, Mass.) Tufts College 1888 to 1890, Mass. Inst. of Technology, 1890–1891. July and Aug., 1888, rodman with A. H. French, Brookline; 1891 to 1894, rodman, transitman, inspector and assistant engineer with A. H. French, Brookline; 1894 to 1897 with French & Bryant, Brookline, as resident engineer on topographical survey of Middlesex Fells and Loring estate, Salem, Mass., and as chief-of-party at Brookline office; 1897 to 1902 with W. Dabney Hunter, Chief Engineer and Supt. of Construction for town of Melrose, last two years assistant in charge of engineering division; 1902 to 1905 with French & Bryant in charge of work at Canobie Lake Park, Salem, N. H., North Hatley, Quebec and Atlanta, Ga.; 1905 to 1907 with Guy Lowell, as resident engineer on Billings estate on the Hudson River; 1907 and 1908 with L. D. Thorpe as resident engineer on Norwood, Mass. sewer system; Dec., 1908 to May, 1910 with Guy Lowell as resident engineer on Piping Rock estate, Oyster Bay, Long Island. Refers to H. F. Bryant, A. H. French, L. D. Thorpe and R. H. Whiting.

Mullen, Luke David, Boston, Mass. (Age 41, b. Boston, Mass.) Public school education and private tutor. Six years with R. A. Malone as clerk and financial manager during the construction of Metropolitan Sewer and Cambridge and Metropolitan Water Works; in 1897 formed a partnership as Coleman Bros. and built under contract the Manchester and Milford R. R.; Section F, East Boston Tunnel; Sections 5, 10, 11, 12, Washington St. Tunnel; Wilmington Filter Plant and several other contracts; is now a contractor. Refers to J. F. Callahan, Jr., W. F. Kearns, L. L. Street and J. M. Wiseman.

Sweet, Frank Albin, Pawtucket, R. I. (Age 40, b. Mansfield, Mass.) 1887 to 1894 in City Engineer's Dept. of the city of Pawtucket; 1894 to date assistant engineer in charge of office work in that department, having principal oversight of all street plans and grades; has been in charge of the designing of bridges, layout of water mains and other general municipal work in that office. Refers to P. M. Blake, G. A. Carpenter, E. P. Dawley ann H. B. Wood.

MINUTES OF MEETING.

JUNE MEETING OF THE SOCIETY.

Boston, June 15, 1910.—A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.35 o'clock P. M., President Henry F. Bryant in the chair, 90 members and visitors present.

The records of the regular May meeting and of the adjournment thereof were approved as printed in the June *Bulletin.*

Messrs. William W. Bigelow, John M. Cashman, John F. Connell, Samuel L. Connor, Frederick C. Dashper, Charles A. Fritz, Charles H. Getchell, Harry R. Hall, Robert B. Jeffers, Edward T. Murphy, Jewett B. Newton, Charles H. Restall, Walter F. Robinson, Fred E. Tibbetts, Philip B. Walker, Henry E. Warren and Frank S. Wilson were elected members of the Society and Messrs. Burton M. Lawler and Charles F. Templeton as associates.

The Constitution as adopted at the meeting of May 25, 1910, and sent out with the notice of this meeting, was, on motion duly made and seconded, adopted for the second time as required by the present Constitution, 28 members voting in the affirmative and 3 in the negative.

Amendments offered by Mr. Higgins — striking out the words "other" and "shall not be eligible as Associates," in the fifth paragraph of Article II of the Constitution and inserting at the beginning of the paragraph the words " Associates shall be " — were rejected. Amendment to Article V,— striking out the word " regular " in the fourth line, — offered by Mr. Higgins, was also rejected. While Article V was being further considered, the discussion was brought to a close by the adoption of a call for the previous question, on motion of Mr. Sherman.

The consideration of the proposed code of by-laws presented at the meeting of May 25, 1910, and sent out with the notice of the meeting, was then taken up. After discussion it was voted unanimously to adopt the by-laws as printed, excepting by-laws 5, 7, 9 and 13.

During the discussion, the time for the literary exercises having arrived, further consideration was postponed until the conclusion of those exercises.

By-law 5 as printed, after the rejection of an amendment striking out the words "one or more," in the sixth line, and inserting the word "three," was itself rejected, 17 voting in the affirmative and 10 in the negative, not the necessary two thirds.

By-law 7 as printed was amended on motion of Mr. Higgins by striking out the words "at least" in the tenth line of the second paragraph and inserting the words "less than" in place thereof, and also by striking out the words "do not," in the eleventh line of the same paragraph. An amendment providing for election by letter ballot, instead of by vote of the Board, was rejected. The by-law as amended was then adopted unanimously.

After the adoption of an amendment offered by Mr. Howe, striking out the last four lines of by-law 9 as printed, the amended by-law was rejected. Later the matter was discussed further, and after the insertion at the end of present by-law 11, of the words, "Any such appropriation or any part thereof not used within three years shall be returned to the fund," the by-law was adopted, with the understanding that it shall be number 9 of the new by-laws.

By-law 13 as printed was also adopted after a discussion by Mr. Howland as to the advisability of continuing sections within the Society.

After a general discussion of the subject, on motion of Mr. Howe, it was voted, "That the by-laws passed this evening, including by-law 5 of the present code, be adopted as the by-laws of the Society," 25 voting in favor and 1 against.

The President stated that in answer to a communication from the Joint Committee on Club-House and Society Headquarters, the Board of Government recommended the passage of the following votes:

1. *Voted:* That the Society approves the general scheme for the proposed Society Headquarters and Engineers' Club, as outlined by the Joint Committee in its circular dated June 6, 1910.

2. *Voted:* That the Society desires quarters in such a building as is proposed, and is prepared to pay a total annual rental not exceeding $2,500 therefor, in addition to salaries of independent or joint officials.

3. *Voted:* That the Society advocates the joint maintainance and use of its library with those of other societies, but desires, as far as practicable, to preserve an independent ownership of books and periodicals.

Also that the Society desires the joint use of social rooms for all its members, but is unable to offer any additional rental above the amount specified in the second vote.

4. *Voted;* That it is the opinion of the Society that its members individually or collectively will actively interest themselves in securing tenants for any headquarters building of approved design and location.

After amending vote 2 by striking out the amount of rental named and leaving the amount to be inserted to be determined by the Board of Government, the several votes were passed, on motion duly made and seconded for each vote.

On motion of Mr. Rollins it was *Voted;* That the representatives of the Boston Society of Civil Engineers on the Board of Managers of the Association of Engineering Societies are requested to confer with the Committee of the Engineers' Club of St. Louis appointed to consider the withdrawal of the Society from the Association, and to report their recommendations in the September *Bulletin.*

The literary exercises of the evening consisted of a description of the methods of repairing and resurfacing streets and highways by the Lutz Surface Heater, by Mr. B. B. Colborne, representing the Equitable Asphalt Maintenance Company of Kansas City, Mo. The description was illustrated by motion pictures showing the process in complete operation in Washington, D. C., and by a large number of lantern slides showing the results of the use of the method.

A vote of thanks was extended to Mr. Colborne for his interesting description.

The meeting adjourned at 11.15 P. M.

S. E. TINKHAM, *Secretary.*

LIST OF MEMBERS.

ADDITIONS.

JOHN M. CASHMAN,	20 Weld Hill Ave., Forest Hills, Mass.
FREDERICK C. DASHPER,	104 Highland Ave., Winthrop, Mass.
CHARLES H. GETCHELL,	36 Banks St., West Somervills Mass.
LEROY P. HENDERSON,	Lakeside Ave., Beverly, Mass.
G. FRANK KEMP,	348 Central Ave., Milton, Mass.
BURTON M. LAWLER,	16 City Sq., Charlestown, Mass.
EDWARD T. MURPHY.	7 Hancock St., Boston, Mass.
WALTER F. ROBINSON,	15 Cliff St., Arlington Heights, Mass.
CHARLES F. TEMPLETON,	48 Regent St., Roxbury, Mass

CHANGES OF ADDRESS.

CHARLES H. BARTLETT, . . . 60 Pemberton Sq., Boston, Mass.
WILLIAM W. BIGELOW, . . 724 Lexington Ave., Waltham. Mass.
GEORGE W. BLODGETT, ... R. F. D. No. 3, Lakewood, N. J.
WILLIAM T. BLUNT, . . . 1147 Adams St., Dorchester, Mass.
CHARLES G. CRAIB, . . . 208 Villeneuve, West, Montreal, P. Q.
J. EARL CUNNINGHAM, ... 2 Louisburg Sq., Boston, Mass.
LUTHER DEAN, ... Taunton, Mass.
RALPH W. EMERSON, . . . 69 Mayfield St., Dorchester, Mass.
EDWARD W. HADCOCK, ... 195 Davis Ave., Brookline, Mass.
WINSLOW H. HERSCHEL, ... 2 Wall St., New York City.
GILBERT HODGES, ... Hill, N. H.
JOHN L. HOWARD, ... 58 Crescent Ave., Melrose, Mass.
ELMER G. MANAHAN, . . 10 South Hillside Ave., Glen Ridge, N. J.
HIRAM A. MILLER, ... 14 Beacon St., Boston, Mass.
STANLEY A. MILLER, Oral de Obras Publicas, Santo Domingo, R. D., W. I.
CHARLES H. PEASE, . . . 523 Tremont Bldg., Boston, Mass.
FRANK A. PEIRCE, ... Box 371, Taunton, Mass.
THEODORE P. PERKINS, ... R. F. D., No. 14, Hudson, Mass.
R. WINTHROP PRATT, . . State Board of Health, Columbus, Ohio.
RICHARD H. RICH, ... 152 Temple St., New Haven, Conn.
CONANT W. RUTH, ... 176 Federal St., Boston, Mass.
WM. T. SHAW, ... 1822 Beacon St., Brookline, Mass.
RALPH E. SMITH, ... 7 Pembroke St., Somerville, Mass.
REYNOLD H. SUTHERLAND, . . . 1 Fortesque Ter., Lynn, Mass.
HARRY P. WILSON, ... 1096 Boylston St., Boston, Mass.
DANA M. WOOD, ... 147 Milk St., Boston, Mass.

DEATH

WILLIAM JACKSON, ... Died June 30, 1910.

LIBRARY NOTES.

BOOK REVIEW.

Life of John Albert Johnson, by Frank A. Day and Theodore M. Knappen, p. 427. Price $2.00 net. Chicago, Ill., Forbes & Co. 1910.

(DONATED FOR REVIEW.)

This volume is a highly interesting biography of the late governor of Minnesota and also contains seven thoughtful addresses in addition to editorials and tributes.

This man's life, which must have possessed an inheritance of pluck and capacity, is a remarkable example of what can be achieved by one who is compelled to leave school at a very early gae, and whose home is one of extreme poverty.

One lesson to be learned from his life is that the masses will sometimes indorse a man whom they believe to be able and honorable.

The book is well written and its style is attractive and we heartily commend it for reading for engineers or in fact for anyone.

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RECENT ADDITIONS TO THE LIBRARY.

U. S. Government Reports.

Coast and Geodetic Survey — Isostasy.

Interstate Commerce Commission. Annual Report for 1909.

Water Supply Papers. No's 241, 243 to 249, 252.

State Reports.

Indiana, Annual Report of State Board of Health, 1908.

Massachusetts, Annual Report of R. R. Commissioners, 1908.

Massachusetts, Annual Report of Highway Commission, 1909.

Massachusetts, Annual Report of Charles River Basin Commission for 1906, 1907, 1908 and 1909.

New York, Report of Advisory Board on Barge Canal, 1909.

New York, Report of Metropolitan Sewerage Commission, 1910.

New York State Engineer, Annual Reports for 1908 and 1909.

Rhode Island, Annual Report of Commissioner of Dams and Reservoirs, 1909.

City and Town Reports.

Baltimore, Md., Annual Report of City Engineer, 1909.

Bangor, Me., Annual Report of Water Board, 1909.

Fitchburg, Mass., Annual Report of Water Commissioners, 1909.

Holyoke, Mass., Annual Report of City Engineer, 1909.

Lawrence, Mass., Annual Report of Water Board, 1909.

Lewiston, Me., Annual Report of Water Board, 1909.

Lowell, Mass., Annual Report of Water Board, 1909.

Manchester, N. H., Annual Report of Water Commissioners, 1909.

New Bedford, Mass., Annual Report of City Engineer, 1909.

New Bedford, Mass., Annual Report of Supt. of Streets, 1909.

Somerville, Mass., Annual City Report, 1909.

Springfield, Mass., Annual Report of City Engineer, 1909.

Worcester, Mass., Annual Report of City Engineer, 1909.

Worcester, Mass., Annual Report of Supt. of Sewers, 1909.

Miscellaneous.

Report of International Navigation Congress, Milan.

Fire Engine Tests by National Board Fire Underwriters, 1910.

The Port of Rotterdam, G. J. DeJongh.

Proceedings Nova Scotia Institute of Science, 1904 to 1907.

Pittsburg, Pa., City Planning.

Roads and Pavements, Ernest Flagg.

Investigation of Centrifugal Pumps, C. B. Stewart.

Cost Date, H. P. Gillette — Second (1910) edition.

Western Society of Civil Engineers. Proceedings 1880 and 1881.

Civil Engineer's Club of the Northwest. Vol. 4.

The Society Bulletins covering from 1900 to 1909, have been bound and placed on the shelves.

The Librarian would welcome any suggestions from the members relative to practical improvements in the conduct of the library.

FREDERIC I. WINSLOW,
Librarian.

NEW ENGINEERING WORK.

(Under this head the Excursion Committee proposes to present each month a brief resume of engineering work in progress in New England, so far as such information is readily obtainable. Engineers and contractors are requested to send descriptions of the work they have in progress to Richard K. Hale, Secretary Excursion Committee 85 Water Street, Boston, on the first of each month.)

Commonwealth of Massachusetts. — METROPOLITAN PARK COMMISSION.—Excavation of channel for purification of Alewife Brook and Mystic River.

Construction of about 800 lineal feet of concrete sea wall, Quincy Shore Reservation.

Work of reconstruction and repairs of roadways, and treatments for dust suppression is in progress throughout the Metropolitan Park District.

HARBOR AND LAND COMMISSIONERS.

Work in progress is as follows:— Dredging is being done in the South Channel of Mystic River, Charlestown; at outer end of

proposed new pier, South Boston Flats; at Cohasset Harbor, Plymouth Harbor, Cotuit Harbor, and Cuttyhunk. Stone breakwater is being built in Cohasset Harbor, and stone jetties and excavation to make a new entrance to Buck's Creek, South Chatham.

Metropolitan Water and Sewerage Board. — *Water Works.* — For reinforcing the existing 48-inch Weston Aqueduct supply mains, between the terminal chamber of the Weston Aqueduct in Weston and the low-service distribution mains in Beacon street in Brighton, the following work is in progress: A 60-inch cast-iron water pipe is being laid in Commonwealth avenue, between Valentine street and Grant avenue, in Newton. The work at Walnut street is being done in the usual way, by manual labor; at Ward street, trench is being excavated with a machine. A circular pressure tunnel is being excavated in rock between Grant avenue, near Commonwealth avenue, and Montrose street in Newton. The completed tunnel will be 76″ in diameter inside the concrete lining, and will be used for conveying water under a pressure of 20 pounds per square inch. The tunnel excavation is completed for a length of about 300 feet from the westerly portal near Grant avenue, and tunnel work has been begun at the easterly portal.

For providing additional protection to the East Boston water supply a 30-inch and 36-inch pipe line is being laid through Marginal street and Congress avenue in Chelsea, and a tunnel 8 ft. 2 in. in diameter is being excavated under Chelsea Creek 25 feet down-stream from Chelsea street bridge, between Chelsea and East Boston, in which the 36-inch low-service pipe line is to be laid. A shaft for this work has been constructed on the Chelsea shore of the Creek to a depth of about 55 feet, and a short portion of the tunnel has been excavated. This work is being done under compressed air.

For the improvement of the Lake Cochituate watershed, work is in progress on a system of surface water drains including about a mile of open channel and one mile of covered drain. The covered drains include a section of 36-inch concrete conduit and a section of 24-inch vitrified pipe drain. The work is located between North Main street, near Pond street, in Wayland, and Bell's Mill Pond near County road and Speen street in Framingham.

City of Boston.— Engineering Department.—*Broadway Bridge over B. & A. R. R.*— The steel work of this bridge is being cleaned by the sand blast process.

Street Department.— *Highway Division.*— The construction of the following streets is contemplated: Wales, Emmet, Wescott, West Park, Leon, Ralstron, and paving Hancock street with brick blocks, and macadamizing Bucknam street.

Work is in progress as follows: The construction of Longwood ave., Dudley st., Damrett st. and Heath st. with brick blocks; Parkman st. with asphalt, Washington st., Jamaica Plain, with granite blocks, and Welles ave. with macadam, and granolithic sidewalks on Harvard st.

Sewer Division.— Work is in progress on the Stony Brook Conduit in the Parkway at Forest Hills.

Boston Transit Commission.—Work on Section 1 of the Tunnel under Beacon Hill is proceeding from the shaft at the intersection of Grove and Phillips streets. The shield is a little south of Mt. Vernon street, at which place the top of the arch is about 70 feet below the surface. The side-drifts are excavated about 150 feet in advance of the shield and a portion of the concrete sidewalks are built therein. About two-thirds of Section 1 of the Tunnel has been completed.

A shaft is being sunk on the Common, to be used in constructing the Park-street station for the Cambridge Connection.

Abington.—The work on the reinforced concrete standpipe for the towns of Rockland and Abington is progressing rapidly. This standpipe is to be 46 feet diameter and 104 feet high. About 80 feet in height has already been completed. Will be finished first week in October.—Simpson Bros. Corporation, Contractors.

Boston.—Simpson Bros. Corporation are finishing the six story reinforced concrete building on Beacon St. for Eugene L. Foss. The workmanship on the exterior finish of front is attracting much attention. The building will be occupied about Oct. 1st by the Auto Car Company.

Lawrence, Mass.—On the bank of the Merrimack River, below the Wood Worsted Mills, the Aberthaw Construction Co. is putting in the second floor on the Printing Building of the Pacific Mills new Print Works. They will soon begin on the reinforced concrete coal pocket. The contract covers some sixteen acres of floors, filters, tunnels, and miscellaneous concrete work used in textile plants of this sort.

Lowell, Mass.—The Aberthaw Construction Co. is putting on the fifth floor of the twelve-story cotton storehouse for the Massachusetts Cotton Mills. This job is on Bridge Street, and is passed by the electric cars from Lowell to Lawrence. Flat slab mushroom construction is being used here; steel columns enclosed with concrete support are used for the first seven floors; above this concrete columns.

Lynn, Mass.—The Aberthaw Construction Co. has just completed Building X for the General Electric Co.; flat slab mushroom floor, concrete frame, brick walls.

Westerly, R. I.—The new concrete standpipe built by the Aberthaw Construction Company, has been filled to its capacity, before any waterproofing was done on the outside. Two small leaks were all that developed under this preliminary test. The pipe was built with steel forms, is unusually smooth and a very satisfactory job.

Mansfield, Mass.—A reinforced concrete factory for the Johnson Cracker Co., 180 feet by 50 feet and four stories high, is under construction by Benj. Fox, Inc.

Matteawan, N. Y.—The large Fan shop of the Green Fuel Economizer Co., which was recently destroyed by fire is being rebuilt. The floor space will be greatly extended and equipped with latest improved machinery. Meanwhile the plant is running full time in all departments, although the fans are being built in the open without shelter, which is of no great disadvantage during hot weather. They have recently built two 25-foot induced draft fans for the Omaha & Council Bluffs St. Ry. Co.'s Power Plant (these are the largest ever built for such use) two 21 foot mechanical draft fans for the Michigan Alkali Co., Wyandotte, Mich., and fans for the Hotel Astor, New York City and the Hudson Terminal Co.'s shops, New York.

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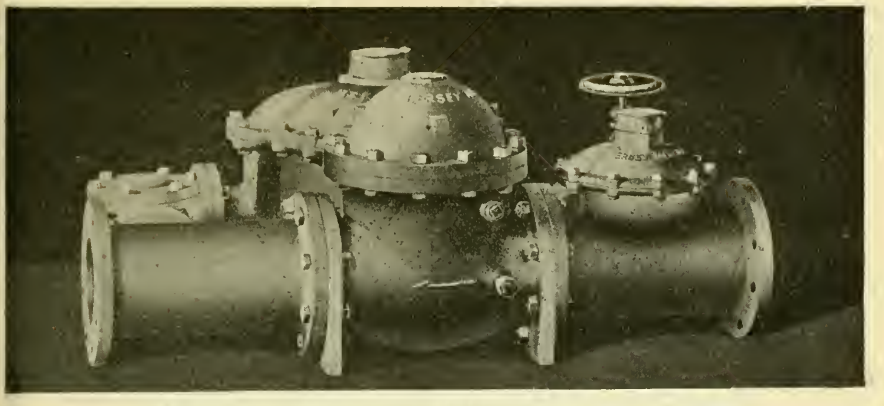

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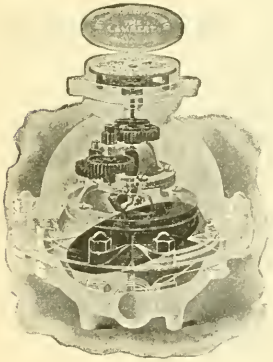

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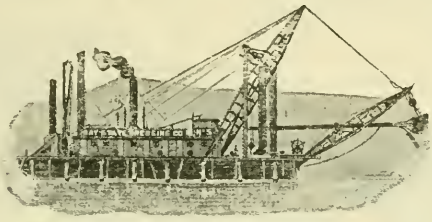

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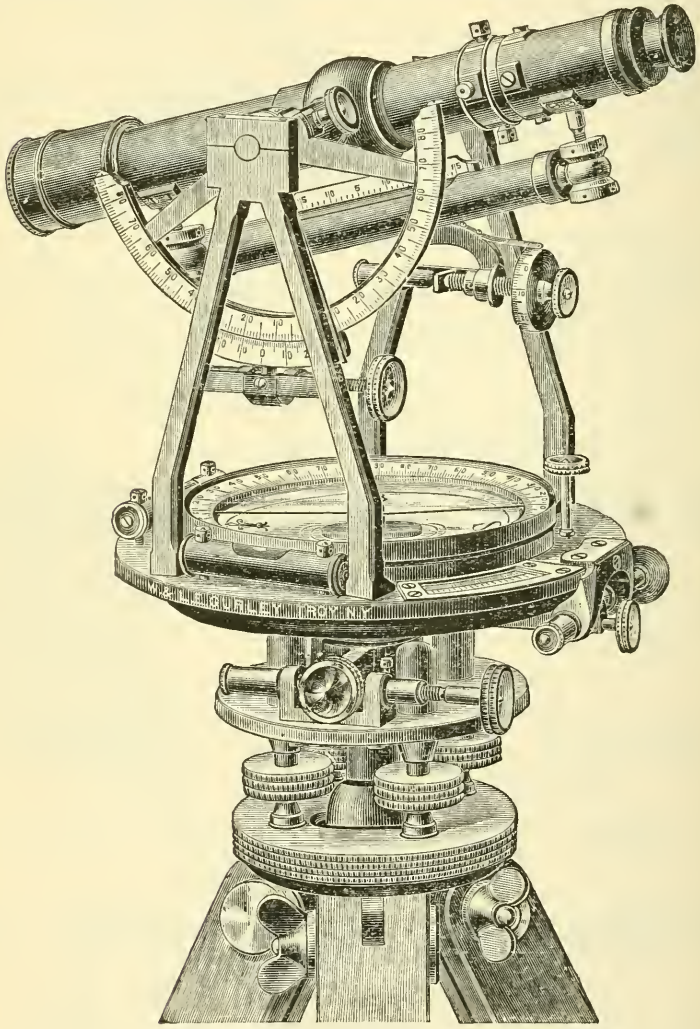

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BOSTON SOCIETY OF CIVIL ENGINEERS.
ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. OCTOBER, 1910 No. 45

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

October 19, 1910. Regular meeting in Chipman Hall at 7.30 P. M. "An account of the Destruction of Cartago, Costa Rica by the Earthquake of May 4 1910."

October 19, 1910. Excursion to Mass. Institute of Technology Meet at 2 o'clock.

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Prof. Thomas A. Jaggar, Jr., will speak of the geological features and Prof. Charles M. Spofford will discuss the effects of the earthquake on different classes of structures. The lectures will be illustrated with views of Cartago taken soon after the earthquake and by photographs of other Central American scenes.

The members of the American Society of Mechanical Engineers, and of the Boston Section of the American Institute of Electrical Engineers have been invited to co-operate with us in this meeting.

S. E. TINKHAM, *Secretary.*

1845 1910

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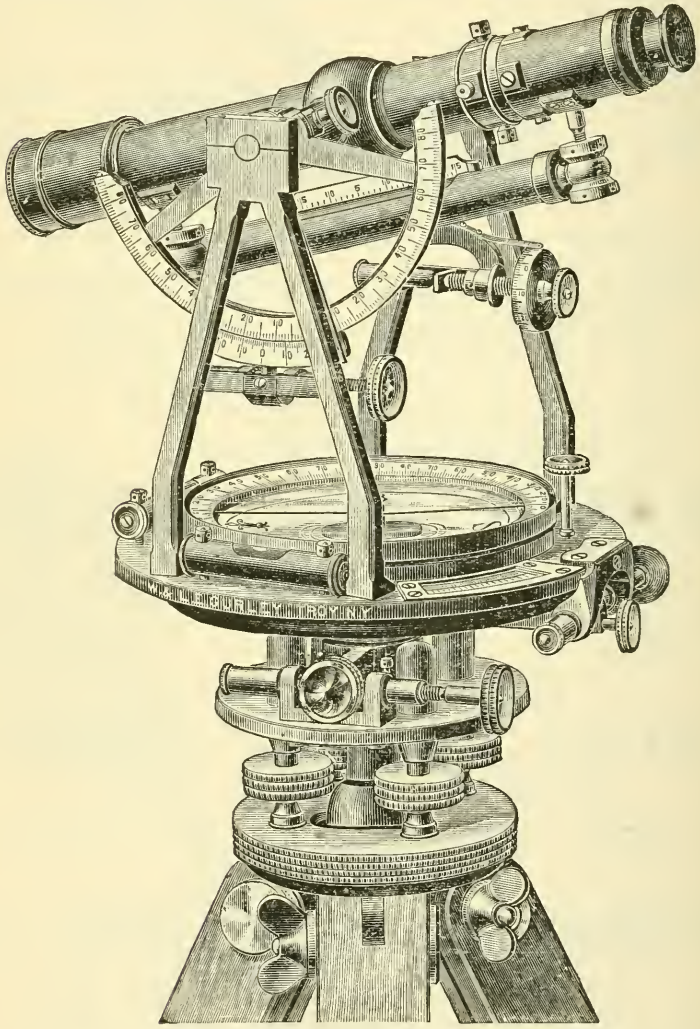

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S. E. TINKHAM, *Secretary.*

EXCURSION.

October 19, 1910.

Arrangements have been made for the testing of a reinforced concrete Beam and Column before the members of the Society, at the laboratories of the Massachusetts Institute of Technology in Trinity Place, on the afternoon of October 19, 1910.

The party will assemble in the laboratory at 2 P. M., entering through the door of "Engineering B" building on Trinity Place, turning at once to the left, and passing through the machine shop into the laboratory.

Extensometers and other devices for measuring deformations will be used in the test, giving the members an opportunity to see these instruments in actual use.

The Beam and Column have been furnished by the Aberthaw Construction Company especially for this test.

The test will be conducted by Prof. H. H. Hayward, of the Institute.

Opportunity will be given to inspect the laboratories of the Institute.

EXCURSION COMMITTEE.

NOVEMBER MEETING.

At the regular meeting to be held November 16, 1910, Mr. Charles R. Gow will read a paper entitled, "Methods and Costs of Construction of Slow Sand Purification Plant for the new Springfield, Mass. Water Works."

It is expected that advance copies of this paper will be ready for distribution to members early in November.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

Applications received before the second Wednesday inthe month will be printed in the Bulletin for that month, but will not be repeated except upon request.

The Secretary will be glad to receive notice of positions available and of men available, and will promptly answer calls for information from members and non-members wishing to employ assistants.

To carry this work forward successfully the hearty-co-operation is required not only of the members of the Society but of firms and corporations having positions open.

MEN AVAILABLE.

2. Technical training at Tufts College and Institute of Technology. Over twenty years experience in municipal engineering and topographical surveying; has had charge of the laying out and engineering construction of large private estates.

16. Member. Now in private practice, would like salaried position as structural designer. Has had sixteen years experience in railroad work, including bridge and other structural designing, and four years in U. S. Service at Panama as designer directly under Division Engineer.

17. Age 21. No experience Desires position as a beginner in an engineer's office.

19. Age 28. Hes had some experience as a rodman and draughtsman in a landscape architect's office.

20. Member. Last five years in U. S. service in the Philippines in charge of construction of the sewerage systems at Manila and at Cebu. Previous experience for more than 20 years in municipal work. Would like position as constructing engineer on some large work, or surveyor on accurate city work, or superintendent of water works in small city or large town, Eastern Massachusetts preferred.

Civil Service Examination.

The Massachusetts Civil Service Commission will hold an examination for Foremen and Inspectors in the Street and other Departments of Boston on November 16, 1910. A copy of the General Order as to these examinations and notice as to this particular examination, may be seen at the Society Rooms. They

may also be obtained at the office of the Commission, Room 152, State House, Boston. The general order states that experience in civil engineering work will qualify an applicant.

APPLICATIONS FOR MEMBERSHIP.

[October 12, 1910.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-Laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

DAY, ERNEST WALTER, Watertown, Mass. (Age 41, b. Franklin, Mass.) High School education and private instruction in technical branches. 1886 to 1889, apprentice, Putnam Tool Co., Fitchburg; 1889 to 1891, drawing room with Putnam Tool Co. and drawing room with Mather Electric Co.; 1890 to 1891 with Brown & Sharpe (Shop experience); 1891 to 1894 erecting experience with Mather Electric Co., in charge of work three years; 1894 to 1895, built and operated Warrensburg, N. Y. Electric Light Co.; (designed this plant); 1895 to 1897, Boston Elevated Ry. Co.; 1897 to 1898, Malden Electric Light Co.; 1898 to 1910, Hood Rubber Co., Watertown, Mass., as Master Mechanic. This includes all motive power and machinery erection, operation and maintenance, also design and construction of special machinery for this plant. Has had charge of construction of all buildings and engineering problems in connection with the property. At present is in charge of Engineering Dept., as Chief Engineer. Refers to G. H. Barrus, H. F. Bryant, R. S. Hale, W. F. Learned, David Sutton and R. H. Whiting.

DELONG, HAROLD CLARK, Boston, Mass. (Age 30, b. Dorchester, Mass.) Graduated from Harvard College, 1903, with degree of A. B., and from Lawrence Scientific School, 1904 with degree of S. B. in Mining Engineering. June to October, 1904 with Maine Tourmaline Co., Auburn, Me. as foreman; 1904 to 1905 with Federal Lead Co., Flat River, Mo., as inspector; October to November, 1905 with Portland Gold Mining Co., Victor, Colo., as miner; December 1905 to March 1906 with Minas Dolores y Anexas, Matehuala, S. L. P., Mexico, as surveyor; April 1906 to June 1909 in private practice in various parts of Mexico, surveying, assaying, exploring and superintending exploitation for various people; July 1909 to April 1910, not employed on account of sickness; April 1910 to date employed as cement tester, by Boston Transit Commission. Refers to E. S. Davis, G. D. Emerson, R. K. Hale, A. W. Parker and P. B. Walker.

Denman, Walter M., Springfield, Mass. (Age 39, b. Coshocton, O.) Educated in the public schools and a special course at Dennison University. Began engineering work as rodman in 1890. 1892 to 1893 Resident Engineer, Construction, Penna. R. R.; 1894 Engineer Construction Texas Midland; 1895–6–7 Resident, Location and Construction Engr. on the Mex. Cuer & Pac. R. R.; 1898 to 1900 Contracting Engr., King Bridge Co.; 1902 to 1903 Chief Engr. Miss Central; 1904–5–6, Contracting Engr. Oswego Bridge Co. Since 1906 has been engaged in the design and construction of concrete structures, particularly of reinforced concrete bridges. Has been engineer for nearly one hundred concrete bridges including that over the Deerfield River at Shelburne Falls, 400 feet long; the Waterville, Me. Bridge, 580 feet long and the Nashua-Hudson Bridge, 495 feet long. Has also built several dams and concrete buildings. Refers to W. M. Foster, L. E. Moore, L. G. Morphy and G. F. Swain.

Hardy, Henry Lewis, Auburndale, Mass. (Age 29, b. Manchester, N. H.) Graduate of Manchester, N. H. High School, 1901; attended Mass. Inst. of Technology, 1901 to 1905, leaving before graduation on account of trouble with his eyes. In 1905, employed by Boston & Albany R. R. as rodman; with this road continuously to present date. At present draughtsman with Division Engr. Refers to E. A. Haskell, J. B. Russell. Walter Shepard and W. C. Whitney.

Rourke, Louis Keegan, Boston, Mass. (Age 37, b. Abington, Mass.) Graduate of Mass. Inst. of Technology in 1895, with degree of S. B. From 1895 to 1897 with B. & M. R. R.; 1897 to 1899, Panama R. R.; 1899 to 1902 with Guayaquil & Quito R. R.; 1902 to 1904, reporting on public works Mexico, Chile and Ecuador; 1904 to 1905, contracting for Mass. Highway Commission; 1905 to 1910 with Isthimian Canal Com., Panama; from June, 1910 to date, Supt. of Streets, Boston, Mass. Refers to C. F. Allen, F. H. Fay, F. A. McInnes. C. M. Spofford and G. F. Swain.

Sullivan, James Henry, Dorchester, Mass. (Age 51, b. Roxbury, Mass.) Public school education and private tutors. 1885 to 1889 real estate office and land surveying; 1889 to date in the employ of the City of Boston in every capacity from transitman to Ass't. Engineer; present position is that of Deputy Superintendent of Streets of Boston, in charge of the Highway Division. Refers to Joshua Atwood, 3rd, E. S. Dorr, F. H. Fay and F. A. McInnes.

MINUTES OF MEETING.

SEPTEMBER MEETING OF THE SOCIETY.

Boston, Sept. 21, 1910. — A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.50 o'clock P. M., President Henry F. Bryant in the chair, 140 members and visitors present.

On motion duly made and seconded, it was voted to dispense with the reading of the record of the June meeting, and to approve the same as printed in the September *Bulletin.*

The Secretary announced that the following had been elected to membership in the grades named : —

Members: — Messrs. Arthur B. Barnes, William A. Brown, Arthur N. Coleman, Mark E. Kelley, Patrick J. Malley, William H. G. Mann, Leon O. Norwood, Wilbur C. Otis, Horace W. Oxnard, Theodore Parker, Arthur P. Rice, Clarence W. Rolfe, Horace U. Ransom, and Chester E. Taylor.

Juniors: — Messrs. Thomas R. Hazelum and Hugh Nawn.

Associates: — Messrs. Charles E. Hale, Edgar Knowlton, John M. Lyons, Charles H. Rogers and George E. Towle.

The President announced the death of William Jackson, a member of the Society, which occurred on June 30, 1910. By vote, the President was requested to appoint a committee to prepare a memoir. The following have been named as that Committee: Desmond FitzGerald, E. D. Leavett, and F. H. Fay.

The President called attention to the two vacancies in the number of Directors, occasioned by the adoption of the new constitution at the June meeting, and as notice had been given of these vacancies in the call for this meeting, it was now in order to proceed to an election. Mr. Hodgdon placed in nomination, Mr. J. P. Snow for the term ending in March, 1912, and L. L. Street for that ending in March, 1911, and stated that he named these members because they were candidates for Directors at the last annual meeting.

On motion duly made and seconded, the Secretary was instructed, by a unanimous vote, to cast a ballot for these nominees for the terms specified. The Secretary having performed the duty assigned him, the President announced that Mr. J. Parker Snow had been elected Director for the term expiring March, 1912, and Mr. L Lee Street for the term expiring 1911.

The Secretary reported for the Society's representatives on the Board of Managers of the Assocaition of Engineering Societies, that they were in communication with the Committee of the Engineers' Club of St. Louis, which was considering the advisability of that society withdrawing from the Association. Up to

the present time, however, the consideration of the matter had not reached a stage which warranted your representatives in making any recommendation. They, therefore, asked for further time. On motion the report was accepted and further time granted.

The thanks of the Society were voted to the Aberthaw Construction Co. and to Messrs. Fred T. Ley & Co., for courtesies extended to the members of the Society this afternoon on the occasion of the visits to Lowell, Mass. and Nashua, N. H. The thanks of the Society were also voted to the management of the Aero Meet at Squantum for courtesies shown our members during the visit to the aviation grounds.

Mr. Louis K. Rourke, Superintendent of Streets of Boston, and late Assistant Engineer in charge of Construction of the Central Division at the Panama Canal, was then introduced and spoke of the work at the Canal with special reference to the organization and methods of construction. The lantern was used to illustrate his remarks.

After passing a vote of thanks to Mr. Rourke for his very interesting talk, the Society adjourned.

S. E. Tinkham, *Secretary.*

LIST OF MEMBERS.

ADDITIONS.

Arthur B. Barnes	30 Huntington St., Lowell, Mass.
Charles E. Hale	6 Beacon St., Boston, Mass.
M. Elbridge Kelley	15 Beckett St., Peabody, Mass.
Edgar Knowlton	Rockport, Mass.
William H. G. Mann	30 Court House, Rockland, Me.
Hugh Nawn	43 Brunswick St., Roxbury, Mass.
Leon O. Norwood	Rockland, Me.
Horace W. Oxnard	55 Court St., Houlton, Me.
Horace U. Ransom	1 Arlington St., Boston, Mass.
Arthur P. Rice	34 Chestnut St., Everett, Mass.
Charles H. Rogers	Rockport, Mass.
Joseph F. Ross	Ipswich, Mass.
Walter B. Snow	170 Summer St., Boston, Mass.
Chester E. Taylor	Palmer, Mass.
George H. Towle	1063 Washington St., Gloucester, Mass.

CHANGES OF ADDRESS.

F. S. Badger, care of J. G. White & Co., La Calera Prov. de Cordoba, Argentina, S. A.
W. T. Barnes . . . . . Las Vegas, New Mexico.
Stephen Child . . . . . 6 Beacon St., Boston, Mass.
G. W. Cutting, Jr. . . Civil Engineer, Q.M.D., U.S.A., Manila, P. I.
F. C. Dashper . . . 100 Summitt Ave., Winthrop Highlands, Mass.
N. C. Grover . . . . . 38 Morton Pl., East Orange, N. J.
C. R. Marsh . . . . . 52 Ivy St., Boston, Mass.
B. S. Rose . . . . . 7 St. Paul St., Cambridge, Mass.
W. J. Sando . . . care of Milwaukee Club, Milwaukee, Wis.
F. F. Skinner . . . . . 10 Bridge St., New York City.
R. E. Tarbett . . . . . Aspinwall, Pa.
E. C. Willard . . . . . General Delivery, Seattle, Wash.
H. P. Wilson . . . . . 11 Shirley St., Worcester, Mass.

DEATH

Edwin P. Dawley . . . . . Died, Oct. 7, 1910.

LIBRARY NOTES.

Recent Additions to the Library.

U. S. Government Reports.

Quality of the Surface Waters of California.

Surface Waters — Supply of the United States — California.

Chief of Weather Bureau. Annual Report for 1908–09.

State Reports.

New Jersey, Annual Report of State Geologist, 1909.

City and Town Reports.

Albany, N. Y., Annual Report of Bureau of Water, 1909.

Cambridge, Mass., Annual Report of City Engineer, 1909–10.

Haverhill, Mass., Annual Report of City Engineer, 1909.

Lynn, Mass., Annual Report of Water Board, 1909.

New Orleans, Semi-annual Report of Sewerage and Water Board, 1909,

New York, N. Y., Annual Report of Board of Water Supply, 1908.

Providence, Quarterly Report of Department of Public Works, June, 1910.

Providence, Annual Report of City Engineer, 1909.

St. Louis, Mo., Annual Report of Water Commissioner, 1909.

Toronto, Canada, Annual Report of City Engineer, 1909.

Miscellaneous.

New York Passenger Terminal of Penna. and L. 1. Railroads.

Slason Thompson, Railway Library for 1909.

W. Bollman, Iron suspension and trussed bridge. Gift of Bertrand T. Wheeler.

H. S. Jacoby, Structural Details. Gift of S. Everett Tinkham.

Geo. A. Sofer, Ventilation of Subways.

F. I. Winslow, *Librarian.*

NEW ENGINEERING WORK.

(Under this head the Excursion Committee proposes to present each month a brief resume of engineering work in progress in New England, so far as such information is readily obtainable. Engineers and contractors are requested to send descriptions of the work they have in progress to Richard K. Hale, Secretary Excursion Committee, 85 Water Street, Boston, on the first of each month.)

Commonwealth of Massachusetts.—HARBOR AND LAND COMMISSION. FISH PIER.—A contract has been signed and work has begun upon the construction of the new Fish Pier which is to be built immediately east of the Commonwealth Pier in South Boston. The new pier is to be 1200 ft. long and 300 ft. wide, and the docks on either side are to be dredged to a depth of 23 ft. below mean low water. The retaining walls of the pier are to be of granite, 41 ft. high, and 27 ft. wide at the bottom; built of large stone varying from 5 to 12 tons in weight, resting on a leveling course of riprap, with a substantial coping on top. The wall is to be laid dry, and the portion below the water is to be placed by divers. The space between the walls is to be filled with material dredged from the dock, Holbrook Cabot & Rollins Corporation, Contractor. The principal quantities are as follows:

Dredging	414,600	cu. yds.
Granite masonry	60,560	" "
Riprap	40,200	" "
Gravel filling	94,000	" "
Filling from dredged material	274,600	" "
Contract price	$760,000.	

City of Boston. — STREET DEPARTMENT. — *Highway Division.* — Dudley St., from Harrison Ave. to Magazine St., Brick Block.

Longwood Ave., from Huntington Ave. to Brookline Ave., Brick Block.

Heath St., from So. Huntington Ave. to Parker St., Brick Block.

Hancock St., from Columbia Road to Winter St., Brick Block.

Damrell St., from Dorchester Ave. to Old Colony Ave., Brick Block.

Charles St., from Boylston St. across Beacon St., Granite Block.

Washington St., from Green St. to the Arborway, Granite Block.

Kingston St., from Essex St. to Beach St., Asphalt (Trinidad)

Clarkwood St., from Blue Hill Ave. to Norfolk St., Macadam.

Ralston St., from Dorchester Ave. to Boston St., Macadam.

Antrim St., from Bennington St. to Ashley St., Macadam.

Hyde Park Ave., from Ashland St. to Hyde Park Line, Macadam.

Washington St., from Williams to Marvin Sts., Artificial Stone Walks.

Harvard St., from Washington St. to Blue Hill Ave., Artificial Stone Walks.

Thr following are under contract but no work has been done as yet:

Bucknam St., from Lawn St. to Fisher Ave., Macadam.

Leon St., from Ruggles St. to Greenleaf St., Macadam.

W. Park St., from Bernard St. to N. E. Railroad, Macadam.

Westcott St., from W. Park St. to Talbot Ave., Macadam.

Street Department.—*Sewer Division.*—Stony Brook conduit Parkway at Forest Hills.

Boston Transit Commission.—Work on Section 1 of the Tunnel under Beacon Hill is proceeding from the shaft at the intersection of Grove and Phillips streets. The shield is between Mt. Vernon and Joy streets, where the top of the arch is about 70 feet below the surface. The side-drifts are excavated about 150 feet in advance of the shield, and a portion of the concrete side-walls are built therein. About three-quarters of Section 1 of the Tunnel has been completed.

Work on Section 2, under Boston Common for the Park-street station of the Cambridge Connection, is proceeding by side-wall drifts from three shafts which have been sunk at different places on the line of work. The shaft near Joy street is 40 feet x 16 feet, is 63 feet below the surface of the Common, and is to finished grade. That near the Brewer fountain is about 55 feet below the surface of the Common, and is also to finished grade. The remaining shaft, in the present Park-street subway station loop, is sunk some 20 feet below the platform level of that station.

Boston Elevated Railway.—East Cambridge Extension.—*Charles River Bridge.*—The ribs, jack arches, and floor of 4 of

the 12 reinforced concrete arches have been run. The steel work of the span over Prison Point street is erected. The work is progressing rapidly upon the false work for the remaining spans.

All sand and broken stone used in this work is crushed from granite of the same quality as was used in the piers, and the exposed faces of the bridge are being dressed to give the effect of hammer dressed and rough pointed granite.—Holbrook, Cabot & Rollins Corporation, Contractor.

Boston.—The building for the Auto Car Co. on Beacon street is completed, and will be occupied immediately.—Simpson Bros. Corporation, Contractor.

Brunswick, Me.—The rock excavation has just been started for the Pulp Mill owned by the Cabot Manufacturing Co. This mill is largely of reinforced concrete. There is a small brick superstructure. It is practically a concrete power station with room for grinders, which are direct connected to the shafts of the wheels. The Aberthaw Construction Co. is just starting the rock excavation. The coffer dam is in place. They will probably not be able to carry the work to completion before spring of next year.

Cape Cod Canal.—Highway Bridge at Bourne.—This bridge is to be 730 feet long and 40 feet wide, and consists of 10 approach spans, 35 to 40 feet long, and 3 spans over the canal. The central span is 160 feet long, and is to be a 2-leaf bascule draw. The 4 piers supporting the draw-span and adjacent spans rest on the sand 15 feet below the bottom of the canal. Each of the larger piers next to the draw consists of two 9-foot square caissons, 30 feet apart, center to center, which are sunk by the pneumatic process. When the caissons are within 4 feet of the required depth sinking is stopped, and to give additional stability and bearing the bottom is spread out to 15 feet square. At the top the piers are connected by a reinforced concrete strut 12 feet deep and 2½ feet wide. The two piers at the sides of the canal are similar but smaller, being 6 feet square, spread out at the bottom to 9 feet square. The land piers each consist of two 7-foot square concrete footings which support the columns carrying the approach spans. The abutments are of concrete, 30 feet high.

Work on the piers was commenced August 1st, and the pneumatic foundations are practically complete.—Holbrook, Cabot & Rollins Corporation, Contractor.

Connecticut River. — Highway Bridge at Saybrook, Conn.—The new bridge is 1796 feet long and 24 feet wide. The foundations consist of 12 piers and 2 abutments. The piers are of brown stone, built in open caissons and resting on timber grillages supported upon piles. Work on the substructure was commenced in April, and will be completed by November 1st. — Holbrook, Cabot & Rollins Corporation, Contractor.

Lawrence, Mass. — Pacific Mills. — The Aberthaw Construction Co. have completed the print building, the floors of the power station, and are at work on the singe house and dye house. Lockwood, Greene & Co. are the Engineers for this work.

Lowell, Mass. — The 10th floor of the 12 story cotton storehouse for the Massachusetts Cotton Mills is being put in place by the Aberthaw Construction Co., who have been making a story a week on this structure. The roof should be on about the first of November.

Rockdale and Cherry Valley. — Water District. — The Simpson Bros. Corporation are building two reinforced concrete reservoirs with dome roof. Each reservoir is 40 feet in diameter and 21 feet high, capacity 200,000 gallons each. To be completed Nov. 15.

Rockland, Me. — The large concrete reservoir built by the Simpson Bros. Corporation is completed and will be filled about Dec. 1.

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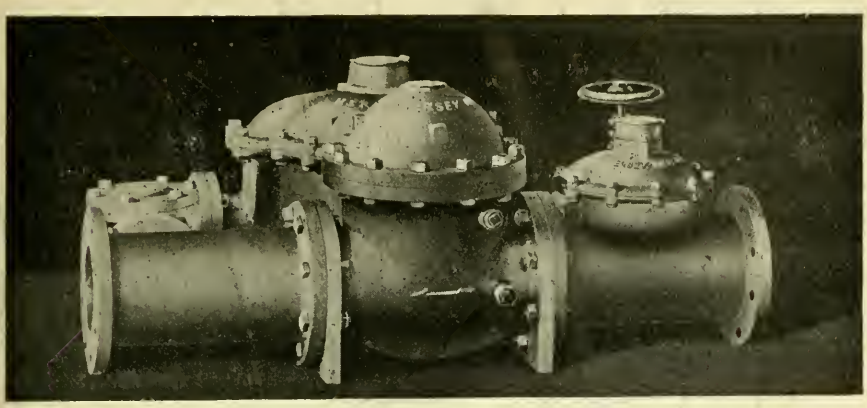

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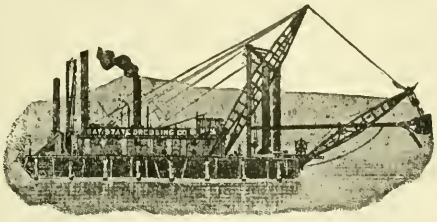

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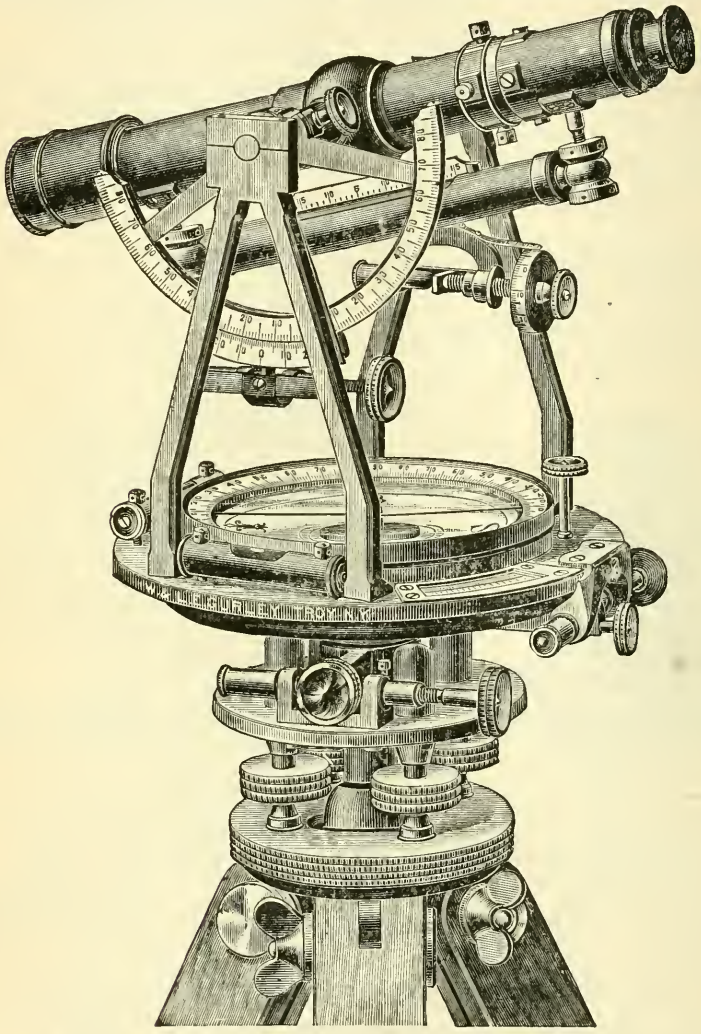

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MONTHLY BULLETIN.

NEW SERIES. NOVEMBER, 1910 No. 46

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

November 16, 1910. Regular meeting in Chipman Hall at 7.30 P. M. Paper on Methods and Cost of Construction of the Springfield Purification Plant.

November 16, 1910. Excursion to North Attleboro and Attleboro.

December 7, 1910. Meeting of Sanitary Section at the Boston City Club.

Informal Meetings. Employment Bureau.

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, November 16, 1910, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. Charles R. Gow will read a paper entitled, "Methods and Costs of Construction of Slow Sand Purification Plant for the new Springfield, Mass. Water Works."

Mr. Allen Hazen, Consulting Engineer and Mr. E. E. Lochridge, Chief Engineer on this work, will present discussions.

Advance copies of this paper are sent to members with this Bulletin and they are invited to contribute discussions either oral or written, which will be printed with the paper in the JOURNAL

S. E. TINKHAM, *Secretary.*

NOVEMBER EXCURSION.

Automobile Excursion, Nov. 16, 1910.

Members of the Society are invited to participate in an automobile excursion to the filter beds just completed in the town of North Attleboro, Mass., by the C. E. Trumbull Co., under the direction of Frank A. Barbour, Consulting Engineer. The trip will include a visit to the small dam with clay core wall, now practically complete, in the town of Attleboro, Mass. In order that members desiring to participate in the trip from Boston may be accommodated in automobiles furnished by the kindness of members, a post card notifying the Secretary to that effect must be sent so as to be in his hands not later than Nov. 14th. Members operating or owning automobiles and being in a position to offer them to the Society of Civil Engineers for the afternoon are requested to communicate with the Secretary of the Excursion Committee, Mr. Richard K. Hale, of of Richardson & Hale, 85 Water St., Boston, Mass., at once. Members going by auto are advised to provide themselves with warm wraps. Those who desire may take the train leaving the South Station at 12.40 P. M. on Wednesday afternoon, November 16th. On arrival at the Attleboro station trolley cars may be taken directly to the filter beds, a ride of about ten minutes, via "Gee Whiz" or "Short Line." After the inspection of the beds, the party will take the same line to North Attleboro where cars will be changed for trolley towards Providence.

The automobile ride from Boston will start from Copley Square at 1 P. M., sharp, and the route will be out Boylston Street to the Fenway; thence along the Fenway to Centre St. to Dedham. As the ride is short and should not take more than an hour and a half, and from the fact that two or more cars will be on hand to lead the way, it is not thought necessary to describe the route at greater length. The ride is over excellent roads, and will be greatly enjoyed by members who have the opportunity to join the party. The expense will not exceed $2.00 per member, which, as before, on the Cape Cod Excursion, will be refunded to members furnishing automobiles, for gasolene, etc.

If replies sent to the Secretary of the Excursion Committee indicate that it will be necessary to send part of the party via the 12.40 train from the South Station, from fifteen to twenty members will be accommodated in automobiles from the Attleboro R. R. station to the filter beds and dam, and return to the depot.

EXCURSION COMMITTEE.

DECEMBER EXCURSION.

(Preliminary Notice.)

Through the courtesy af Mr. E. S. Davis, Acting Chief Engineer, and Mr. G. D. Emerson, Resident Engineer, of the Boston Transit Commission, the members of the Boston Society of Civil Engineers have been invited to participate in an excursion to the work now under construction on the Cambridge Connection, on the afternoon of the regular meeting in December. This work is under contract by both Messrs. McGovern and Coleman Bros. It is expected that the drifts will be driven through before the middle of December and that ready access may be had from the work driven by the shield to the new work at the Park Street Station. Further particulars will be given by the Excursion Committee in the December *Bulletin.*

EXCURSION COMMITTEE.

DECEMBER MEETING OF THE SOCIETY.

At the regular meeting to be held December 21, 1910, the title of the paper will be "A New Theory for Reinforced Concrete Standpipes," by Mr. H. B. Andrews, Engineer for Simpson Bros. Corp.

Descriptions of various reinforced concrete reservoirs will be given by Messrs. Bertram Brewer, F. F. Forbes, and Leonard C. Wason. The lantern will be used.

DECEMBER MEETING, SANITARY SECTION.

The regular December meeting of the Sanitary Section will be held Wednesday evening, December 7th, at the Boston City Club.

Dinner will be served as usual at 6.30. The subject for discussion and the speaker will be announced in a special notice to be sent to the members of the Section about ten days before this meeting.

APPLICATIONS FOR MEMBERSHIP.

[November 9, 1910.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-Laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to examine this list of applicants and to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidate, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as references, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider these applications until the expiration of twenty (20) days.

Allen, Lawrence Howe, Quincy, Mass. (Age 23, b. Hartford, Conn.) Graduated from Mass. Inst. of Technology, Civil Engineering 1908. In fall of 1908, for several weeks with F. E. Luzzier of Quincy; during winter and spring of 1909 worked for Johnstown & Gallitein Ry., Johnstown, Penna., as rodman; June 1909 to date, maintenance of way office of the N. Y. N. H. & H. R. R., Boston-Midland Division. Refers to C. F. Allen, C. B. Breed, G. E. Russell and G. T. Sampson.

Bradbury, Royall Douglas, Boston, Mass. (Age 27, b. Jefferson City, Mo.) Student at University of Missouri, 1901–1903, graduated from Mass Inst. of Technology, 1906. Summer of 1902, rodman on Chicago, Rock Island & Pacific R. R.; summer of 1903, draughtsman for Kansas

City Bridge Co., Kansas City, Mo.; summer of 1905, draughtsman for A. M. Blodgett Construction Co., Kansas City, Mo.; fall of 1906, assistant in Civil Engineering, Mass. Inst. of Technology; summer of 1907, in office of Sanford E. Thompsoo, Newton Highlands, Mass.; fall of 1907 to date, Instructor in Civil Engineering, Mass. Inst. of Technology, also consulting engineer on surface lines bridges for Boston Elevated Ry. Co. Refers to L. E. Moore, C. M. Spofford. G. F. Swain, S. E. Thompson, S. E. Tinkham and J. R. Worcester.

Haywood, Harrison W., Newton Centre, Mass. (Age 37, b. Boston, Mass.). Graduated, Mass. Inst. of Technology, 1896. 1896–1898, Assistant, Mass. Inst. of Technology; 1898–1899, Draughtsman; 1900–1907, Instructor, Mass. Inst. of Technology; 1907 to date, Assistant Prof. Applied Mechanics, Mass. Inst. of Technology, also consulting engineer on Materials, Concrete Specification and Construction. Refers to C. B. Breed, F. H. Carter, R. K. Hale, E. F. Miller, L. E. Moore and C. M. Spofford.

Lawrence, William Henry, Boston. (Age 42, b. Boston, Mass.) Graduate Mass. Institute of Technology, 1891, in architecture with additional work in civil engineering. Since graduation successively Instructor, Assistant Professor and Associate Professor in architecture at the Mass. Institnte of Technology and at present Professor of architectural engineering at the same institution. Refers to A. E. Burton, L. E. Moore, C. M. Spofford and G. F. Swain.

Morrison, William Harrison, Jr., Boston, Mass. (Age 22, b. Manchester, N. H.). Educated in public schools of Manchester, N. H. and Brockton, Mass., and graduated from Tufts College, 1910, with degree of B. S. June 1910 to date with Ambursen Hydraulic Co., Boston, Mass. Refers to W. L. Church, Theodore Horton, E. H. Rockwell, C. W. Ruth and J. I. Tucker.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

Applications received before the second Wednesday in the month will be printed in the Bulletin for that month, but will not be repeated except upon request.

The Secretary will be glad to receive notice of positions available and of men available, and will promptly answer calls for information from members and non-members wishing to employ assistants.

To carry this work forward successfully the hearty-co-operation is required not only of the members of the Society but of firms and corporations having positions open.

MEN AVAILABLE.

20. Member. Last five years in U. S. service in the Philippines in charge of construction of the sewerage systems at Manila and at Cebu. Previous experience for more than 20 years in municipal work. Would like position as constructing engineer on some large work, or surveyor on accurate city work, or superintendent of water works in small city or large town, Eastern Massachusetts preferred.

21. Member. Inspector and assistant to resident engineer on water power development in Vermont; assistant engineer for contractors for dry dock at Charlestown Navy Yard; resident engineer on a $60,000 water supply sistem; 4 years office engineer for contracting firm, and for the last 18 months principal assistant engineer on canal construction. Desires position as resident or assistant engineer; salary $150. per month.

22. College graduate, 1907, specializing in civil engineering. Three years' experience on construction work at Panama Canal. in charge of concrete mixing and erection of concrete plant. Desires employment on construction work, concrete preferred. Salary $100. per month.

23. Nine years with Metropolitan Water Board on aqueduct, tunnel and filter beds at Clinton, and on preliminary surveys for Weston Aqueduct; five years on Charles River Basin work, on dam, lock and conduit. Desires position in charge of surveys or construction; salary $100 per month.

POSITION AVAILABLE.

01. Twenty dollars will be paid weekly to the right party familiar with triangulation. A survey commenced in 1904 of the City of Everett is again to be continued by order of the city gov-

ernment. Plans on the scale of 40 feet to the inch are being prepared from field surveys connected with meridian passing through State House. A man in need of employment, and capable of carrying along the work now under way may apply to the City Engineer of Everett.

MINUTES OF MEETINGS.

OCTOBER MEETING OF THE SOCIETY.

Boston, Oct. 19, 1910.—A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.45 o'clock P. M., President Henry F. Bryant in the chair. The members of the American Society of Mechanical Engineers and of the Boston Section of the American Institute of Electrical Engineers joined in this meeting, the attendance being about 350.

On motion duly made and seconded it was voted to dispense with the reading of the record of the September meeting, and to approve the same as printed in the October Bulletin.

The President reported that the following had been elected to membership in the grades named :—

Members: — Messrs. Charles J. Bonnemort, Walter B. Douglass, Hiram P. Farrow, William F. Hunt and Frank A. Sweet.

Juniors : — Messrs. Roy F. Bessey and Herbert P. Bruce.

Associates: — Messrs. George M. Clukas and Luke D. Mullen.

The President announced the death of Edwin P. Dawley, a member of the society, which occurred on October 7, 1910, by vote, the President was requested to appoint a committee to prepare a memoir and he has appointed Past President George B. Francis as that Committee.

On motion of Prof. Moore, of the Excursion Committee, the thanks of the Society were voted to the Aberthaw Construction Co. for the reinforced concrete beam and column furnished for the test, which was made this afternoon at the laboratory of the Mass. Institute of Technology. The thanks of the Society were also voted to Prof. H. W. Hayward, of the Institute, for his courtesy in conducting the test.

The subject for discussion, at this meeting, was "An Account of the Destruction of Cartago, Costa Rica, by the earthquake of May 4, 1910." Prof. Thomas A Jaggar, Jr., of the Mass. Institute of Technology, was the first speaker and spoke particularly of the geological features of the earthquake. Prof. Charles M. Spofford followed, discussing the effects of the earthquake on different classes of structures. Both speakers illustrated their discriptions by numerous lantern slides.

Mr. Frank B. Gilbreth, of the American Society of Mechanical Engineers, with the aid of lantern views, gave a very interesting account of the San Francisco Earthquake.

A general discussion followed in which Messrs. Snow, FitzGerald, Caldwell, Larned and the previous speakers participated.

After passing a vote of thanks to Prof. Jaggar, who is not a member of the society, for his interesting and instructive lecture, the Society adjourned.

S. E. Tinkham, *Secretary.*

LIST OF MEMBERS.

ADDITIONS.

William A. Brown	City Engr's. Office, Providence, R. I.
Herbert P. Bruce	15 Chase St., Lynn, Mass.
George M. Clukas	39 Irving St., Cambridge, Mass.
Walter B. Douglass	110 State St., Boston, Mass.
William F. Hunt	409 North St., Weymouth Heights, Mass.
Patrick J. Malley	246 Park St., Dorchester, Mass.
Theodore Parker	Atlantic, Mass.
Wilbur C. Otis	2620 South 17th. St., Philadelphia, Pa.
Clarence W. Rolfe	48 Crescent Ave., Malden, Mass.
Frank A. Sweet	Ass't. City Engr., Pawtucket, R. I.

CHANGES OF ADDRESS.

G. S. Curtis	Marblehead, Mass.
W. H. G. Mann	95 No. Main St., Penacook, N. H.
H. J. Morrison	201 Fremont St., Peekskill, N. Y.
R. R. Newman	607 Park View Ave., Los Angeles, Calif.
C. B. Pratt	Storehouse, W. H. McElwain Co., Manchester. N. H.
R. E. Smith	21 Ireson Ave., East Lynn, Mass.

NEW ENGINEERING WORK.

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water St., Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Water Works. Work on the Newton Tunnel is being pushed by the contractors, The Hanraddy Company, who expect to continue the work through the winter months. It is expected that the work will be in an interesting condition in the early spring, when it is hoped to arrange for an excursion by the members of the Society. At that time probably the steel pipe, the rock tunnel, both lined and unlined, will be carried along far enough to make a visit of interest.

Metropolitan Sewerage Works.—The Chelsea Pumping Station is being built to take the place of the one damaged by fire some time ago. This work will be far enough along so that a visit will be of interest early in the spring. At present members would find it rather difficult to get around the building.

The contractors, who are erecting the new pumping engines, are trying out the machinery and making the proper tests for acceptance by the Metropolitan Water and Sewerage Board. Members who are interested in this work will find much of interest at this time but considerable difficulty will probably be encountered in attempting to make a landing at the wharf in small boats.

Harbor and Land Commission.—Fish Pier.—The dredging of the trenches for the heavy walls and the dock is 20% complete. The construction of the light wall at the head of the dock and the laying of stone by divers on the adjoining heavy wall will be begun very soon. The driving of the foundation piles for the light wall will begin the middle of the month. Holbrook Cabot & Rollins Corporation, Contractor.

Boston Transit Commission.—Work on Section 1 of the Tunnel under Beacon Hill is proceeding from the shaft at the intersection of Grove and Phillips streets. The shield is under Joy street, where the top of the arch is about 52 feet below the surface. The side-drifts are excavated about 200 feet in advance of the shield and a portion of the concrete side-walls are built therein. About five-sixths of Section 1 of the Tunnel has been completed.

On Section 2, under Boston Common for the Park-street Station of the Cambridge Connection, two drifts 12 ft. x 20 ft. have been excavated for side-walls, between shaft No. 1 near Joy St. and shaft No. 2 near the Brewer Fountain.

Drifts are proceeding easierly from shaft No. 2.

The work of excavation under the Park-street Subway Station is now in progress, the earth being taken up to hoppers by means of conveyors and dumped into cars which are taken out by the Elevated Ry. Co. between the hours of 12.30 A.M. and 5.00 A.M. to the Back Bay Fens, where the earth is disposed of. The excavation of a drift 10 ft. x 15 ft. for the north side-wall is completed.

City of Boston.—STREET DEPARTMENT.—HIGHWAY DIVISION.— *Work in Progress.*—Old Colony Avenue, Dorchester to Hyde Streets, Macadam Roadway.

Leon St., Ruggles to Greenleaf Sts., Macadam Roadway.

Ralston Street, Dorchester Ave; to Boston St., Macadam Roadway.

Clarkwood St., Blue Hill Ave. to Norfolk St., Macadam Roadway.

Hyde Park Ave., Ashland St. to Hyde Park line, Macadam Roadway.

Hancock St., Columbia Rd. to Winter St., Brick Block on base.

Damrell St., Dorchester Ave. to Old Colony Ave., Brick Block on base.

Dudley St., Warren to Magazine Sts. Brick Block on base.

Heath St., So. Huntington Ave. to Parker St., Brick Block on base.

Washington St., Green St. to Arborway, Granite Block on base.

Ruthven St. and Elm Hill Ave., Artificial Stone Sidewalks.

WORK UNDER CONTRACT BUT NOT STARTED AS YET.—Bucknam St., Lawn St. to Fisher Ave., Macadam Roadway.

W. Park St., Bernard St., to N. E. Railroad. Macadam Roadway.

Westcott St.. W. Park St., to Talbot Ave., Macadem Roadway.

Morton St., Blue Hill Ave., 580 Ft. Easterly. Macadem Roadway.

Glenway St., near Harvard St., Artificial stone sidewalks.

Harrison Ave., Waltham and Union Park Sts., Artificial stone sidewalks.

Sewer Division : — *Work in Progress.*

Stony Brook Conduit at Forest Hills.

Roslindale Brook at Bellevue Station. Deep cut and incline

Boston Elevated Railway Company. — East Cambridge Extension. The work is being pushed rapidly by the contractors, Holbrook, Cabot & Rollins. About seventy-five members of the Society visited this work on November first and were much interested in the different operations then in progress. As noted in the Excursion Announcement, particular attention is being paid to obtaining a desirable finish, with very good success. Crushed granite and a certain brand of cement, said to be particularly adapted to this feature of the work, are being used. Members who did not participate in the special November Excursion are advised to take the first opportunity to inspect this interesting work before construction is held up on account of cold weather.

The ribs of 7 arches on the Cambridge side of the draw have been poured, and the centering has been removed from 4 spans. The concrete end walls and floor of 3 piers at the Cambridge end are complete. The work of moving the forms ahead for the remaining arches is progressing rapidly. Holbrook, Cabot & Rollins Corporation, Contractor.

Cambridge Main Street Subway.— The Subway is practically complete now from the incline at First Street to the Harvard Square Station. Special attention is being given at present to stopping a few leaks of minor importance. The contractors, The Hugh Nawn Contracting Campany, have been remarkably successfull in getting a first class finish on the concrete, as well as a remarkably uniform mixture, particularly as to density.

Preparations are being made to install the ballast and track and other equipment. Work is progressing rapidly to a completion around the Harvard Square Station.

Boston Elevated Railway Company are erecting a new car barn on Murray Street near Eliot Square.

Cape Cod Canal.—Highway Bridge at Bourne.—The pneumatic foundations of the four piers in the canal, which sup-

port the draw are complete, the caissons having been sunk in 33 days. One of the smaller caissons was sunk 18 feet in 18 hours. The Sagamore abutment and the abjoining piers are complete; and the piers and abutment on the Bourne side will be finished by December 1st. Holbrook, Cabot & Rollins Corporation, Contractor.

Brunswick, Me. — The Aberthaw Construction Co. is just starting the construction of a Pulp Mill for the Cabot Mfg. Co., located opposite the Cabot plant on the Topsham bank of the Androscoggin River. The building is of reinforced concrete, of the general type of the Hydro-Electric plant. In this case the water wheels are attached directly to grinders. The plant will be used for manufacturing pulp.

East Watertown, Mass. — The Aberthaw Construction Co. is just beginning work on the large storage warehouse opposite the Watertown Arsenal for the Hood Rubber Co. The building is 300 ft. long, 100 ft. wide, partly three stories high, and partly one story high, spanned by 80 ft. girders. The work is of reinforced concrete throughout. Henry F. Bryant, Brookline is the Engineer.

Lawrence, Mass. — The print building of the Pacific Mills is completed. The Aberthaw Construction Co. is working on the singe building. Excavation is being done for the finishing building. L. E. Locke, general contractor, Lockwood, Greene & Co. Engineers.

Lowell, Mass. — The roof is just being cast on the twelve story storage warehouse which the Aberthaw Construction Co. is building for the Massachusetts Cotton Mills, Lockwood, Greene & Co. Engineers. The Aberthaw Construction Co. gets out each month a folder showing the progress of this work. The last folder shows eight stories made in eight weeks. The building is 100 ft. x 250 ft.

Brockton, Mass. — A Reading Rotary Screen for extracting the solids from sewage has been installed and it may be seen in place now before it is put in operation.

Las Vegas, N. M. — Metcalf & Eddy are designing and constructing an important arch dam of concrete at Las Vegas. It is expected to place concrete on this work by the last of this week

or the first of next. This dam has been computed to withstand water pressure wholly by arch action, without regard to the gravity feature of the dam. Mr. W. T. Barnes, a member of the Society, is the resident engineer on this work.

North Attleboro, Mass. — Frank A. Barbour is designing and constructing a complete sewerage system and sewage disposal plant for this town. Filter beds are complete, having been built of material found in *situ*. The contractors for this work have succeeded in finishing up the work so that the general appearance of these beds is as good or better than anything so far attempted in New England. C. E. Trumbull and Co., Contractors (See Excursion Notice).

Attleboro, Mass. — Frank A. Barbour is designing and constructing a small earth dam with puddled clay core wall to store 150-million gallons. The material being used in this dam is of more than usual good quality and members who have the opportunity will find the work of considerable interest Bruno and Petitti Contractors (See Excursion Notice).

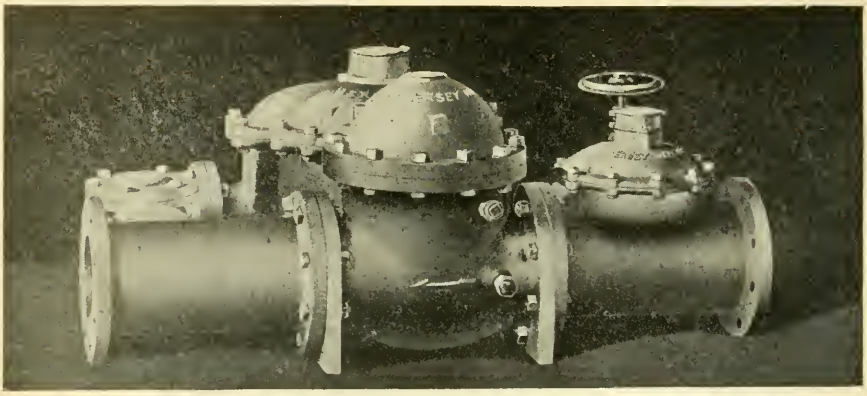
Lynn, Mass. — The Commission appointed by the Governor is taking up the problem of providing better harbor facilities and the work, as far as this Commission is concerned, will be completed when the report is submitted by them at the end of the year 1911.

Taunton, Mass. — Barrows and Breed are preparing plans for the abolition of railroad grade crossings in this city.

Lynn, Mass. — President Mellen has ordered that the work on the abolition of grade crossings, which has been progressing in this city, be stopped, that plans may be prepared for a four-track structure instead of the two-track structure which has been partially completed.

Waterville, Me — Metcalf and Eddy are preparing plans for some large water power developments near this city.

Rochdale and Cherry Valley Water District.—Simpson Bros. Corporation are building two reinforced concrete covered reservoirs, 40 ft. in diameter and 21 feet high with a capacity of 200,000 gallons each. Both reservoirs are being built from the same plan. They will be finished about November 15. Nathan E. Craig of Spencer is Engineer for the Commission and Wm. S. Johnson of Boston is Consulting Engineer.



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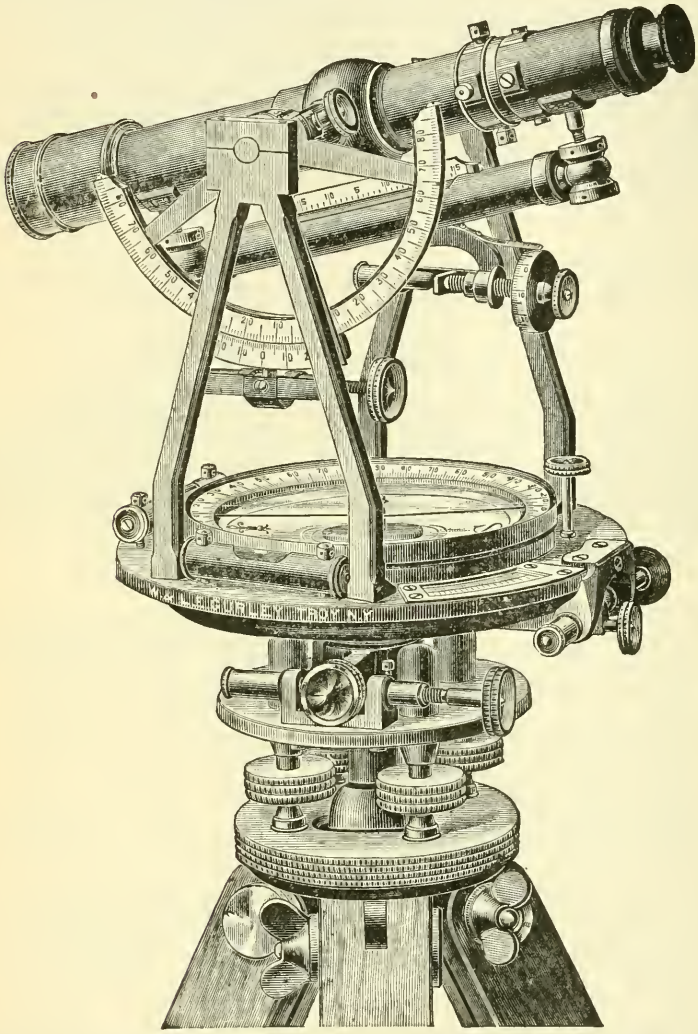

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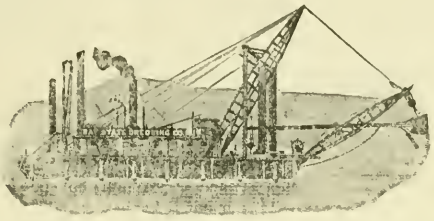

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MONTHLY BULLETIN.

NEW SERIES. DECEMBER, 1910 No. 47

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

December 21, 1910. Regular meeting in Chipman Hall at 7.30 P. M. Paper on A New Theory for Reinforced Concrete Standpipes.

December 21, 1910. Excursion to Beacon Hill Tunnel at 1.30 P. M.

December 28, 1910. Special meeting of Sanitary Section.

January 11, 1911. Informal meeting. Discussion on Waterproofing Concrete.

Engineers' Dinner in January, 1911.

Report of Board of Government on prizes for papers.

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, December 21, 1910, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. H. B. Andrews, Engineer for Simpson Bros. Corporation, will read a paper entitled "A New Theory for Reinforced Concrete Standpipes." Messrs. Bertram Brewer, F. A. Barbour, F. F. Forbes and L. C. Wason have signified their intention of being present and speak of their experience in the construction of concrete reservoirs and standpipes. The lantern will be used to illustrate the paper and the discussions.

S. E. TINKHAM, *Secretary.*

EXCURSION.

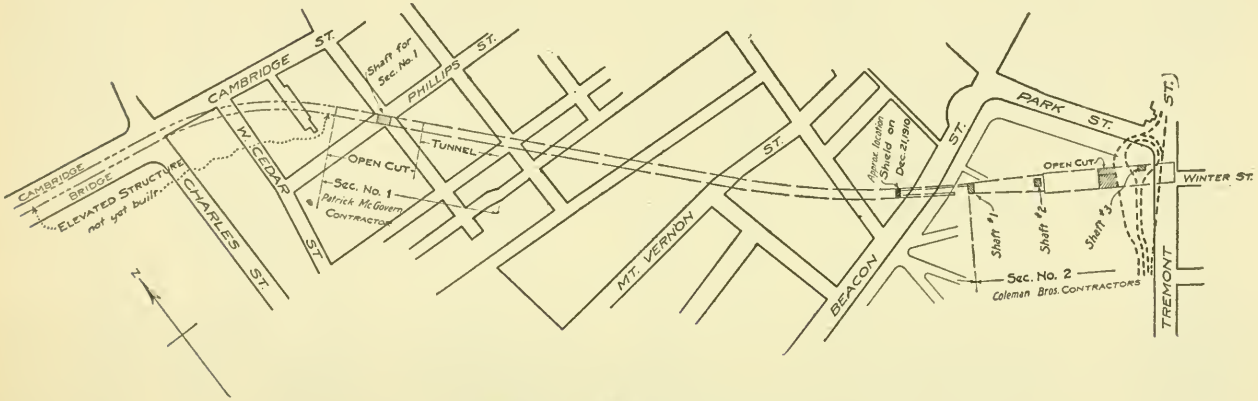
On Wednesday afternoon, December 21st, there will be an excursion to the work which is now being done by the Boston Transit Commission on the Beacon Hill Tunnel. Visitors will start at the shaft opening at Phillips and Grove streets at 1.30 P.M. See sketch map in this bulletin. From this point the party will walk through the tunnel, coming out at one of the shafts in the Common. Rubbers are not necessary but old hats may be desirable for those who wish to inspect the work in the drifts. Section 1 is being driven by means of a roof shield which will be in operation nearly under Beacon street. The north side-wall drift is now through to the shaft in the Common. In Section 2 the station and approach tunnels are being driven between shafts by means of a series of drifts. The sequence of the work in general is as follows: — Side-wall drifts are first driven and back-walls, waterproofing and side-walls built therein. A center crown drift is then driven and connected by cross drifts with the side-wall drifts. Successive concrete arch rings are turned in these cross drifts, after which the core is removed and the concrete invert placed. Work is also in progress under the Park-street station of the Tremont-street Subway, which requires the supporting of the old structure while the new work is being built below. Patrick McGovern is the contractor for Section 1 and Coleman Bros. for Section 2. The contractor for the tunnel section has very kindly consented to move the shield for the benefit of the members of the society on this occasion.

EXCURSION COMMITTEE.

INFORMAL MEETINGS.

The practice which has proved acceptable in former years, of holding informal meetings in the Society's Library on Wednesday evenings not assigned to the regular meetings of the Society and the Sanitary Section will be continued this winter.

Members are requested to notify the Secretary of subjects which they think will be of interest to have presented. It is hoped that many of the members who have recently joined the Society will speak about matters which have come to their knowledge, even if but a short time would be needed in which to treat



BOSTON TRANSIT COMMISSION.

MAP SHOWING LOCATION OF TUNNEL UNDER BEACON HILL.

them, as arrangements can be made to have a number of topics taken up in a single meeting.

At the meeting to be held January 11, 1911, the subject for discussion will be "Waterproofing of Concrete and its Behavior in Sea Water.

SPECIAL MEETING OF THE SANITARY SECTION. DECEMBER 28, 1910.

The officers of the Sanitary Section have learned that Mr. Charles Saville, late assistant engineer of the Massachusetts State Board of Health, and at the present time assistant engineer of the sewerage department of the Emscher-genossenschaft, Essen, Germany, is to spend Christmas in Massachusetts, and an effort will be made to secure him for a special meeting of the Sanitary Section to be held on Wednesday evening, Deeember 28th. Mr. Saville sails for America on the 13th. In case he accepts the invitation of the Section, which will get to him on arrival, special notices will be sent out just before the meeting. It is hoped that Mr. Saville can describe the form of administration of the sewage disposal district for which he is assistant engineer and the Imhoff subsidence tank, designed by Dr. Imhoff, chief engineer of the Emscher-genossenschaft. Should Mr. Saville give the Sanitary Section one evening out of his very short vacation he will deserve a full attendance as a mark of appreciation.

JANUARY MEETING OF THE SOCIETY.

At the regular meeting of the Society to be held on Wednesday January 25th, 1911, an account will be given of the work now in progress at the Brooklyn Dry Dock. It is expected that the following engineers will be present and take part in the discussion :— Lieut. F. R. Harris, U. S. N., the engineer in charge of the work; Mr. T. B. Bryson, engineer in charge of the pneumatic work and Mr. J. W. Rollins, President of the Holbrook, Cabot & Rollins, Corp., contractors for the work.

The lantern will be used.

DINNER OF BOSTON ENGINEERS.

The engineering dinner at Hotel Somerset last January brought together so large a body of engineers and proved to be

such an enjoyable occasion, that it is proposed to have a similar gathering this year. While it is impossible to give the exact date, the committee of arrangements representing the Society of Mechanical Engineers, the Institute of Electrical Engineers and this Society, are planning for the dinner about the middle of January, 1911. Notices will be sent out as soon as definite arrangements can be made.

REPORT ON PRIZES FOR PAPERS.

Under authority of a vote of the Society passed at its last meeting, the following report is submitted for the information of the members :—

Boston, November 16, 1910.

To the Board of Government of the Boston Society of Civil Engineers :

The undersigned, the Committee appointed by you to consider and report concerning the awarding of prizes for papers presented to the Boston Society of Civil Engineers, would respectfully report as follows :

This matter had its inception in the vote proposed by Mr. Desmond FitzGerald and adopted by the Society at its last annual meeting. Mr. FitzGerald has shown great interest in the subject, and has conferred several times with members of the committee. He has expressed the opinion that a bronze medal will be the best form for such a prize, his reasons being that the prize should be valued not for its intrinsic worth but solely as a testimonial that the holder of it has contributed something which his fellow members consider of great value to the engineering profession ; also that the evidence of having received such an award will be more available and less likely to be deposited where it can seldom be seen if the medal is of bronze rather than of a precious metal.

Mr. FitzGerald has very generously offered to provide for the preparation of suitable dies for the medal if the Society decides upon that form of a prize and to provide a sufficient fund for the furnishing of the medals in perpetuity. Your Board has practically adopted his suggestion by voting to accept the gift, and in consideration of this offer and of the many other services by Mr. FitzGerald to the Society in the past has also voted to call the prize " The Desmond FitzGerald Medal."

The only other matter which we, as a committee, have to consider, is the method of the award. After studying the rules of the American Society of Civil Engineers for the award of prizes, we think that those rules will be perfectly adapted to our case with only such changes of names and dates as are necessary to adapt them to our conditions.

We, therefore, submit the following as a form of statement concerning the prize and a code of rules for its award.

RULES GOVERNING THE AWARD OF THE DESMOND FITZGERALD MEDAL.

There is at present one endowed prize for papers published by the Boston Society of Civil Engineers. This prize is to be awarded annually unless the Board of Government shall decide that none of the papers presented during the year are of such a character as to merit the award.

With the assent and approval of the donor, the Society assumes the responsibility for the payment in perpetuity of the Desmond FitzGerald Medal.

COMMITTEE ON AWARD.

1. The Board of Government shall appoint annually, not later than its regular meeting in June of each year, three Members of the Society, not members of the Board of Government, who shall form a Committee to recommend the award of the prize.

2. The papers considered shall include all papers published by the Society during the year ending with the month of September.

3. The Committee on Award shall report its recommendation to the Board of Government on or before March 1st. and the awards shall be made by the Board of Government.

4. The announcement of the awards shall be made at the Annual Meeting.

5. The Secretary of the Society shall act as Secretary to the Committee on Award, but shall have no vote or voice in its deliberations.

CODE OF RULES.

The Desmond FitzGerald Medal.— This medal was instituted and endowed in 1910 by Desmond FitzGerald, Member and Past President of the Boston Society of Civil Engineers.

I. Competition for the medal of the Boston Society of Civil Engineers shall be restricted to members of the Society of all grades

II. There shall be one bronze medal awarded as hereinafter provided. The dies therefor shall be deposited with the Superintendent of the United States Mint at Philadelphia, in trust exclusively for the above purpose.

III. All original papers presented to the Society by members of any class, and published by the Society during the year for which the medal is awarded, shall be open to the award, provided that such papers shall not have been previously contributed in whole or in part to any other association, nor have appeared in print prior to their publication by the Society.

IV. The medal shall be awarded for a paper which shall be judged worthy of special commendation for its merit.

As Mr. FitzGerald desires to be consulted as to the design of the medal, we would recommend that, with his consent, that matter be referred to him.

Respectfully submitted,

EDWARD W. HOWE,
J. R. WORCESTER,
GEO. B. FRANCIS,

Committee.

APPLICATIONS FOR MEMBERSHIP.

[December 14, 1910.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-Laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to examine this list of applicants and to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidate, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as references, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider these applications until the expiration of twenty (20) days.

Butler, Harold Odiorne, Boston, Mass. (Age 34, b. Chelsea, Mass.) Educated in Grammar and High Schools of Newton, Mass. Entered the City Engr's office, Newton, in March, 1894, was rodman on Newton Boulevard Construction for 2 yrs., then instrumentman on the abolition of grade crossings, widening construction and on general city work until 1899. Entered office of Pierce & Barnes, Boston, in August. 1899, as chief of party and so employed until May 1904, on street railroad surveys and construction, general surveying and water power developement in the South and on general work. Entered Road Master's office of the Mass. Electric Companies, Boston, on street railway construction work, from May 1904 to June 1905; from June 1905 until April 1908, back in City Engr's. office of Newton, as Resident Engineer on the abolition of grade crossing through Newton Centre and Newton Highlands; since April 1908 has been engaged in business for himself, at 88 Broad St., Boston, Mass. Refers to R. H. Barnes, H. K. Barrows, F. H. Carter, A. W. Hodges and H. L. Kimball.

Chisholm, Ivan Alexander Fletcher, Houlton, Me. (Age 25, b. Williamsdale, N. S.) Educated in public schools of Quincy, Mass., also took special course in engineering mathematics. With H. T. Whitman one year as rodman and three years as transitman. From 1904 to 1906 with Boston & Northern St. Ry. as transitman; 1906 to 1907 on Key West West extension of F. E. C. Ry. as instrumentman; 1907 to 1908 with Mountain Valley and Plain Ry. of Texas and New Mexico, as assistant locating engineer; 1908 to March 1910 with C. P. R. at Revelstoke, B. C. as transitman and assistant engineer; in April 1910 took position with Boston Elevated Ry. Co. as draftsman, working until Aug. 1910. From Aug. 1910 to date with Bangor & Aroostook Ry., Houlton, Me. as assistant locating engineer. Refers to Moses Burpee, Oren Goodrich, A. W. Hodges, H. W. Oxnard, A. L. Plimpton, E. C. Sargent and F. E. Tupper.

Frame, James Thomas, Melrose, Mass. (Age 33, b. Hyde Park, Mass.) Educated in public schools of Hyde Park, Mass., Berkeley School and Mass. Inst. of Technology. 1898—1900, with Metropolitan Park Commission; 1900 to 1901, Supt. Construction, E. D. Bell & Co; 1901 to 1909, Boston Transit Commission; 1909 to 1910, Supt. Construction Robert Brigham Hospital. At present, with Boston Transit Commission. Refers to C. H. Bartlett, E. S. Davis, W. W. Davis, G. D. Emerson, C. R. Gow and L. B. Manley.

Lang, Fred Willis, Concord, N. H. (Age 32, b. Concord, N. H.) Educated in public schools, Concord, N. H. 1894 to 1899 inc., with City Engineer, Concord, N. H., as rodman and transitman; 1900 to 1904 inc.,

with Boston & Maine R. R., as transitman; 1905 to date, with City Engineer, Concord, N. H. as principle assistant. Refers to W. B. Howe, A. M. Johnson, W. H. G. Mann and J. W. Storrs.

Nolan, Conrad, Somerville, Mass. (Age 19, b. Jacksonville, Fla.) Graduated from Duval High School, Jacksonville, Fla., in June, 1909, and entered the freshman class, Tufts College, Engineering School, in Sept. 1909. During the summers of 1908 and 1909, worked as oiler on U. S. Government Dredges "Florida" and "Key West"; summer of 1910, with Charles R. Gow Co., Boston, as time keeper on sewer construction; left this position in September to return to his studies at Tufts College, where he is now a member of the sophomore class of the Engineering School. Refers to S. L. Connor, C. R. Gow, E. H. Rockwell, F. B. Sanborn and J. I. Tucker.

Oakes, John James, Santo Domingo, R. D. (Age 27, b. London, England.) Graduated from High School, Memphis, Tenn., and student at University of Tennesee part of year 1900 to '01. Aug. 1906 to Sept. 1908, with Hudson Companies, New York City, in various capacities from helper to transitman and on construction of shield driven tunnels, foundations, etc. Oct. 1908 to date with Director General de Obras Publicas, Santo Domingo, W. I., as follows:— Oct. 1908 to Dec. 1909, Chief of Party on surveys and investigations, preliminary to construction of Monte Cristi Irrigation project (53,000 acres); Dec. 1909 to date, Ass't. Engr. Azua Irrigation project, on preliminary and location surveys for tunnels, dams, etc., and at present, assisting on plans, estimate and report. Refers to W. H. Balch, A. B. MacMillan, J. L. Mann and S. A. Miller.

Rice, Lawrence G., Quincy, Mass. (Age 22, b. Sherborn, Mass.) Graduated from Mass. Inst. of Technology, Sanitary Engineering course in 1910. June 1910 to Nov. 1910 on an investigation of sewage conditions in Beverly; at present draftsman on new sewage works for City of Fitchburg. Refers to E. B. Phelps, Dwight Porter, G. E. Russell, C. M. Spofford and H. L. Whitney.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

Applications received before the second Wednesday in the

month will be printed in the Bulletin for that month, but will not be repeated except upon request.

The Secretary will be glad to receive notice of positions available and of men available, and will promptly answer calls for information from members and non-members wishing to employ assistants.

To carry this work forward successfully the hearty-co-operation is required not only of the members of the Society but of firms and corporations having positions open.

MEN AVAILABLE.

25. Graduate, Inst. of Technology, 1905. Has had experience as a draftsman on structural steel and miscellaneous work. Desires position as draftsman; salary $20 per week.

26. Nine years experience on railroad work, preliminary and construction. Desires position as rodman and instrumentman; salary $15 per week.

27. Special student at Inst. of Technology for two and one-half years. Has had nine years experience in electrical and mechanical engineering work, most of his time with the General Electric Co. Desires position as inspector or draftsman on electrical work; salary $1100 per year.

28. Desires position as draftsman or rodman; salary $10 per week. Has had some experience as a mechanical draftsman.

29. Has had nine years experience in railroad work, five as inspector of bridges and two as superintendent.

POSITION AVAILABLE.

04. Draftsman desired, must be neat workman, able to do good plain lettering. One preferred who can run instrument on survey if necessary.

06. Several positions are open on railroad location and improvement work in southern New England, salaries ranging from $12 to $24 per week.

MINUTES OF MEETINGS.

NOVEMBER MEETING OF THE SOCIETY.

Boston, Nov. 16, 1910.—A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont

Temple, at 8 o'clock P. M., President Henry F. Bryant in the chair, 105 members and visitors present.

It was voted to dispense with the reading of the record of the October meeting, and to approve the same as printed in the November Bulletin.

The President reported that the following had been elected members of the Society: — Messrs. Ernest W. Day, Harold C. DeLong, Henry L. Hardy, Louis K. Rourke and James H. Sullivan.

Mr. Howe, for the Board of Government, announced that Past President Desmond FitzGerald had very generously offered to provide a medal as a prize for the best paper read before the Society. The question of the advisability of offering such a prize was referred to the Board, at the last Annual Meeting of the Society, and the Board now desired authority to report in print in the next issue of the Bulletin. The authority was accordingly granted.

Prof. Moore, for the Committee on Excursions, offered the following votes and they were unanimously adopted: —

That a vote of thanks be extended to Mr. Geo. H. Snell, Supt. of the Attleboro Water Works, for courtesies extended this afternoon on the occasion of a visit of members of the Society to the work now under construction on the new dam.

That a vote of thanks be extended to the C. E. Trumbull Co. for courtesies extended to members of the Society on the occasion of a visit to the Filter Beds recently completed by that Company in North Attleboro, Mass.

The paper of the evening was read by Mr. Charles R. Gow and was entitled "Methods and Costs of Construction of Slow Sand Purification Plant for the new Springfield, Mass. Water Works."

As the paper had been printed in full with illustrations and sent with the notice of the meeting, Mr. Gow presented, in abstract, only the more interesting portions of the paper, which he illustrated by the aid of lantern slides.

The Secretary read a discussion of the paper prepared by Mr. Allen Hazen, who was unable to be present, and Messrs. E. E. Lochridge, W. S. Johnson, S. E. Thompson, C. R. Gow and others participated in the discussion.

S. E. Tinkham, *Secretary.*

Adjourned.

DECEMBER MEETING OF THE SANITARY SECTION.

The regular December meeting was held at the Boston City Club on Wednesday, December 7th.

The resignation of Dr. Leonard P. Kinnicutt as Vice Chairman of the Section was received and accepted with regret, and the Clerk directed to express to Dr. Kinnicutt in writing the thanks of the Section for the interest he has shown in its work. A nominating committee consisting of Messrs. Chase, Johnson and Hall, was appointed to nominate a successor to Dr. Kinnicutt. They reported the nomination of Mr. George Bowers, who was unanimously elected to this office.

In accordance with notice received from Mr. S. E. Tinkham, Secretary of the main society, a committee of three was appointed, consisting of the Clerk, Messrs. Charles W. Sherman and Edward Wright, Jr., to report upon a revision of the by-laws of the Section to agree with recent changes in the constitution and by-laws of the main society.

The speaker of the evening was Mr. William B. Landreth, Special Deputy State Engineer of New York, who for the last two years has been in direct charge of the New York State Barge Canal. Mr. Landreth took for his subject the New York State Barge Canal and illustrated his address by numerous lantern slides. Besides describing the general scheme for the new Erie and Champlain canals and their method of water supply, Mr. Landreth took up various portions of the construction work now under way and described these somewhat in detail. Among the interesting features of this work are a great variety of methods of excavation, some very large and complex constructions of concrete in connection with the locks, the construction of several movable bridge dams on the Mohawk River, and numerous other novel features.

Mr. Landreth's paper was of great interest to the forty members of the Section who were present, and it was quite fully discussed.

At the conclusion of the discussion, the Section expressed its hearty thanks to Mr. Landreth for his interesting paper and for the time and trouble that he had taken to prepare it.

H. K. Barrows, *Clerk.*

LIBRARY NOTES.

Book Review.

Contracts in Engineering. By James Irwin Tucker, member Boston Society of Civil Engineers and Assistant Professor of Civil Engineering at Tufts College. pp. 307. McGraw-Hil Book Co., New York. $3.00.

[Gift of the author.]

The desirability for engineers of a knowledge of the principles of law governing contracts and specifications has become generally recognized during recent years, and a number of attempts have been made to supply the want. The engineering schools have added to their courses lectures on the subject calculated to awaken their students' interest, and in some cases have developed regular courses of instruction in contract law. In Prof. Tucker's book we have the result of such a development, carried a step in advance of any previous effort. After discussing the essential features of contracts — their proper formation and the legal methods of interpretation, there fellow chapters on such subjects as Agency, Tort, Partnership and Corporations, Sales, Transportation, Real Property, Negotiable Paper, and other elements of business law ; this extension beyond the limits previously covered by engineering books on this subject being in recognition of the growing demand for engineers with business ability as well as professional skill.

The book is carefully planned typographically and fully indexed, making it well adapted for reference. Following each chapter is a summary of the subjects treated of in a tabular form that furnishes a concise memorandum of the whole. Each chapter also has a complete set of review questions, and the book contains in addition a large number of problems calling for the application of the principles stated. These features make it of especial value to the engineer who desires to acquire a knowledge of law that he had no facilities for obtaining during his own term of schooling, and it is this availability of the book for self instruction that may make it of particular interest to some of the members of this Society. In his opening chapter Prof. Tucker gives many convincing reasons for acquiring this legal knowledge as a matter of self interest and ultimate financial gain to the en-

gineer. To these could well have been added another weighty reason given us by Blackstone himself who has said "that a competent knowledge of the laws of that society in which we live is the proper accomplishment of every gentleman and scholar; a highly useful — . . . almost essential — part of liberal and polite education."

Prof. Tucker's book is vouched for as sound legal doctrine, is well and interestingly written, and is a valuable acquisition to the Society's library.

John C. Moses.

Recent Additions to the Library.

Government Reports.

Panama Canal, Annual Report of Commission for 1909–10, 2 vols.

State Reports.

New Jersey, Annual Report of State Board of Health, 1909.

New Jersey, Annual Report of State Geologist, 1910.

City and Town Reports.

Cambridge, Mass., Annual Report of Water Board, 1909–10.

Detroit, Mich., Annual Report of Park Department, 1910.

Gloversville, N. Y., Report on Sewage Purification, Eddy and Vrooman.

New Orleans, La., Semi-annual Report of Sewer and Water Board, June, 1910.

Reading, Pa., Annual Report of Water Commissioners, 1909.

Minneapolis, Minn. Annual Report of Water Works Dept., 1909.

Miscellaneous.

George S. Morrison. The New Epoch. Gift.

James I. Tucker. Contracts in Engineering. Gift of author.

Kinnicutt, Winslow and Pratt. Sewage Disposal.

Herbert N. Casson., History of the Telephone. Gift of author.

Shelby S. Roberts, Track formulae and tables. Gift of Wiley & Sons.

H. L. Gantt, Work, wages and profits.

Proceedings of National Irrigation Congress.

Charles River Basin Commission. Final Report 1910.

National Board of Fire Underwriters: Reports of Cities:—Alameda, Berkeley, Oakland, San Francisco and San José, Cal; Austin, Beaumont and Houston, Texas; Butte, Great Falls and Helena, Mont., Waterbury, Conn., Spokane, Wash., Elmira, Hornell, Jamestown and Niagara Falls, N. Y.

FREDERIC I. WINSLOW, *Librarian.*

LIST OF MEMBERS.

ADDITIONS.

R. F. BESSEY, ... 11 Congress St., Worcester, Mass.
C. J. BONNEMORT . . . 320 Hyde Park Ave., Hyde Park, Mass.
A. N. COLMAN . . . . 24 Old Court House, Boston, Mass.
H. C. DELONG . . . . . 75 Canal St., Boston, Mass.

CHANGES OF ADDRESS.

F. G. BERRY . . . . . 15 Salem St., Lynn, Mass.
W. T. BLUNT . . . . . 224 Rockingham St., Toledo, Ohio.
C. F. BRIETZKE . . . . . Cold Spring-on-Hudson, N. Y.
T. M. BROWN . . . . . 10 Holmes Ave., Allston, Mass.
G. A. CLARK . . . . . Ft. Still, Oklahoma.
G. W. CUTTING, care of Constructing Quartermaster, Fort Mills, Corregidor, P. I.
F. C. DASHPER . . . . 175 William St., New Bedford, Mass.
W. H. ELLIS, JR., . . . 16 Claybourne St., Dorchester, Mass,
W. C. EWING . . . . . 1017 Kimball Bldg., Boston, Mass.
W. M. FOSTER . . . . . 135 Main St., Nashua, N. H.
J. H. GREGORY, Engr., Metropolitan Sewerage Comn., 17 Battery Pl., New York City.
J. L. HOWARD . . . . . City Hall, Pittsfield, Mass.
H. L. KIMBALL . . . . 856 Watertown St., West Newton, Mass.
H. V. MACKSEY . . . . 11 Gaylord St., Dorchester, Mass.
S. A. MILLER . . . . . 1800 Monroe St., Paducah, Ky.
W. F. MORSE . . . . . 90 West St., New York City.
T. W. NORCROSS Dist. Engr., Forest Service, Majestic Bldg., Denver, Col.
W. V. POLLEYS . . . . . Box 95, Upper Darby, Penna.
D. M. PRATT . . . . . South Hanson, Mass.
C. W. SMITH . . . . . Box 627, Raton, New Mexico.
J. A. STARR . . . . . 54 Irving St., Watertown, Mass.
L. L. STREET . . . . . 95 Sawyer Ave., Dorchester, Mass.
E. D. TREADWELL . . . . Santiago, Santo Domingo, W. I.
C. E. WELLS . . . . . 75 Kimball Ave., Yonkers, N. Y.

NEW ENGINEERING WORK.

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water St., Boston, before the first of each month.)

CONTENPLATED IMPROVEMENTS NEAR BOSTON.*

(By Frederic I. Winslow.)

In spite of the prophecy, prevailing in many quarters, of a business depression, the year closes with good promises for a number of large engineering projects which will be begun in 1911 or soon thereafter. Improving the transportation systems will probably call for the greatest amount of work, as the facilities in and around Boston, especially as far as the transportation of passengers is concerned, are inadequate, and there is several years' work ahead in that direction. The reports so far issued regarding the electrification of the various steam roads in and around the city have been adverse, but the matter has not yet been finally settled. The River Bank Subway, extending towards Brighton, will probably be commenced some time during the ensuing year, as it has been authorized by the Legislature. A subway connection between the Park St. Station, of the present subway, and the South Terminal will also be started in 1911. This may be extended at a later date through South Boston to Dorchester, the estimated cost being $7,000,000. With the completion of the Cambridge subway in the near future the Boston Elevated R. R. will start will start on its proposed elevated railway to Malden. Part of this will be over a private right-of-way. The Boston, Revere Beach & Lynn R. R. will undoubtedly be changed to standard gage and the road extended in a northerly direction. A tunnel connecting the present terminal in East Boston with the South Station is projected. There is also a proposition to build a freight tunnel, connecting the North and South Stations in Boston.

Important grade crossing elimination schemes are in prospect —that of the Boston & Maine in Lynn, the New Haven through Dorchester, and the Boston & Albany in conjunction with other railroads in Worceester. A trolley line from Boston to Providence across private right-of-way is probable. Work of securing the necessary land has already begun.

* From Engineering News for Dec. 8, 1910.

A large amount of building is expected in Chelsea, as only one-third of the area burned in the great fire of 1908 has been rebuilt. Probably $1,000,000 will be spent for building construction in that city. Several bridges connecting Boston with adjacent towns will be rebuilt.

The fire pipe system of Boston will be materially enlarged. About eight miles of old sewers will be reconstructed and numerous additions made School-house construction alone, in the City of Boston, will involve approximately $1,000,000. Numerous towns in the vicinity of Boston are finding their water-supply suspicious in quality, or inadequate in supply, and are contemplating joining the Metropolitan Water District. A filtration system in Lynn is planned at an expenditure of $300,000.

Commonwealth of Massachusetts.— Harbor and Land Commission. *Fish Pier.*— The dredging for the light sea-walls at the head of the docks is complete. Two dredges are now at work on the trenches of the heavy walls. About 100,000 cubic yards of material has been removed. The piles for the foundation of the westerly light wall are driven and riprap is being deposited around them. The granite blocks for the heavy sea-wall are being delivered and it is expected that the work of laying these walls will commence within a few weeks. Holbrook Cabot & Rollins Corporation, Contractor.

At Plymouth one dredge is working in the channel to the Plymouth Cordage Co.'s works.

In Cotuit Harbor an entrance channel is being dredged.

At Hingham Harbor work is in progress, dredging to a depth of six feet an anchorage basin and a channel 75 feet wide to connect the basin with the channel dredged by the United States.

In the Centreville River a hydraulic dredge is excavating a channel 5 feet deep at mean low water, 75 feet wide, extending from East Bay, Osterville, about 2,350 feet.

At South Chatham the mouth of Bucks Creek is being improved by excavation, stone riprap and jetties.

In Cohasset Harbor a stone breakwater is being constructed about 800 feet long.

In the South Channel of Mystic River, dredging is to begin soon, widening a portion of the channel over an area of about 88,800 square feet to a depth of 20 feet at mean low water.

Metropolitan Water and Sewerage Board. — *Water Works.*— This Board is now engaged in constructing a tunnel for a 60-in. pipe in Newton, for the purpose of conveying water from the Weston Aqueduct to the Chestnut Hill Reservoir, and in diverting the water from Snake Brook in Wayland, from Lake Cochituate, into Bannister's Brook. All this work is being done under contract.

The Board is also constructing, by day labor, a tunnel under Chelsea Creek and will lay a water pipe through the same, to give an additional supply to East Boston.

The Board is also installing a hydro-electric plant for the generation of electric power at the Wachusett Dam, Clinton.

A new pumping engine is being installed at the Chestnut Hill Low Service Pumping Station.

Sewerage Works.—A sewage lift station is being constructed at Quincy.

Extensive additions have been made to the East Boston and Deer Island sewerage pumping stations.

New boilers have been installed at the East Boston pumping station and a new pumping engine at the Deer Island pumping station.

Cape Cod Canal. — Highway Bridge at Bourne. — The foundations of this bridge are complete. The erection of the superstructure, consisting of several approach spans and a two-leaf Scherzer rolling lift draw of 160 ft. span, has been begun. Dredging is being vigorously pushed at both ends of the canal. Work on the break-water at the Massachusetts Bay end of the canal has been suspended for the winter.

Boston Elevated Railway Company.— East Cambbidge Extension.— *Charles River Bridge.*— The arch ribs of eight spans have been run, completing this portion of the work from the Cambridge end to the draw opening which is opposite the lock in the Charles River Dam. The jack arches and floor system have been completed for the greater portion of the way. The ornamental parapet is now being run, a completed section of which may be seen at the Cambridge end, near Prison Point Street. Holbrook Cabot & Rollins Corporation, Contractor.

Elevated and Subway Construction..—*Sullivan Sguare Station.*—Drawings are well underway for the extensive changes

contemplated at Sullivan Square, Charlestown. As in the case of the Dudley St. Station, the main feature of the problem has been the separation of in-bound and out-bound traffic, thereby avoiding the existing confusion so apparent at the "rush" hours.

To accomplish this this end necessitates the construction of a new south-bound station over Main Street, opposite the present terminal building and with numerous connections thereto.

An elevated loop is to be provided for the surface cars arriving at the Terminal on the Medford, Arlington and Somerville side. With this loop in operation cars will unload and load passengers as at the west loop of the Dudley St. Station.

The conditions on the Everett and Malden side of the Terminal will remain about as at present, except that passengers arriving at the elevated level will pass by means of an overhead bridge to the new south-bound station before boarding the elevated trains for Boston.

The elevated trains arriving at the Terminal from Boston will discharge all passengsrs, pass around the elevated loop empty and load at the new south-bound platform.

The general scheme outlined above is so arranged as to permit of the satisfactory operation of the Malden Extension upon its completion.

Brunswick, Me. — The Aberthaw Construction Co., has a large part of the rock excavated, the dam built and is placing concrete in the walls of the four forebays and flumes of the power house and pulp mill which they are erecting for the Cabot Manufacturing Co. The job is within plain sight of the bridge from Brunswick to Topsham.

East Watertown, Mass. — The Aberthaw Construction Co., is building the superstructure of the storage building and freight house of the Hood Rubber Co., the building is nearly opposite the Watertown Arsenal. The operation can be seen from Arsenal St.

Lowell, Mass.— The brick work is within about 2 weeks of completion, on the 12 story reinforced cotton storehouse which the Aberthaw Construction Co. is building for the Mass. Cotton Mills. This job is just off the principal square at Lowell.

Lawrence, Mass. — The Aberthaw Construction Co. is building the superstructure of the singe house of the new Print

Works for the Pacific Mills. This job can be seen from the B. & M. R.R. tracks.

City of Boston.—Street Department.—Highway Division.— *Work in Progress.*—Washington St., Green St. to Arborway, Granite Block on concrete base.

Heath St., South Huntinton Ave. to Parker St., Brick Block on concrete base.

Hancock St., Columbia Rd. to Winter St., Brick Block on concrete base.

Massachusetts Ave., Columbus Ave. to Washington St., Asphalt.

Clarkwood St., Blue Hill Ave. to Norfolk St., Macadam.

Bucknam St., Lawn St. to Fisher Ave., Macadam.

Ralston St., Dorchester Ave. to Boston St., Macadam.

Old Colony Ave., Dorchester St. to Hyde St., Macadam.

Addison St., Saratoga St. to Pope St., Macadam.

Freeport St., at Commercial Point Bridge, Filling and Slope Paving.

Sewer Division.— *Work in Progress.*—Stony Brook, section 7, at Forest Hills Square.

Milton, Mass.—Reinforcement of an old sea wall for the for the O. S. Godfrey Coal Company. The work on the sea wall consists in excavating through old logs, stones and other debris to a depth of about 8 ft. below extreme low water, building therein a concrete foundation and surmounting the same with a granite rubble wall approximately 4 ft. in thickness built against the existing old wall. The method used in building the foundation consists essentially of excavating in pockets 10 ft. long and 4 ft. wide working tide work. The presence of old riprap and debris in the mud makes the work especially difficult but the foundation is now completed with the exception of three pockets and the rubble wall is somewhat more than half finished. Charles R. Gow Co., Contractor.

Boston & Albany Railroad.—At Cambridge Street, Allstont A concrete fence is under construction about 2500 linear fee. of fence 6 ft. in height. The concrete members have been cast separately and are now being erected. Concrete posts 9″x9″ extending 4 ft. into the ground and 6 ft. above ground, spaced 7′6″ o. c., containing 3″x3″ slots in their side faces into which are inserted four solid concrete slabs tongued and grooved 3″ in thickness and 17″ in height each. The whole is surmounted by a concrete coping 4″x5″. Charles R. Gow Company, Contractor.

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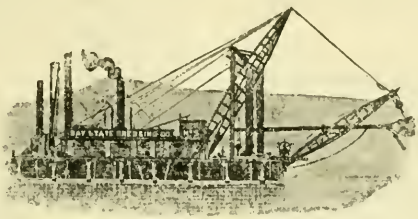

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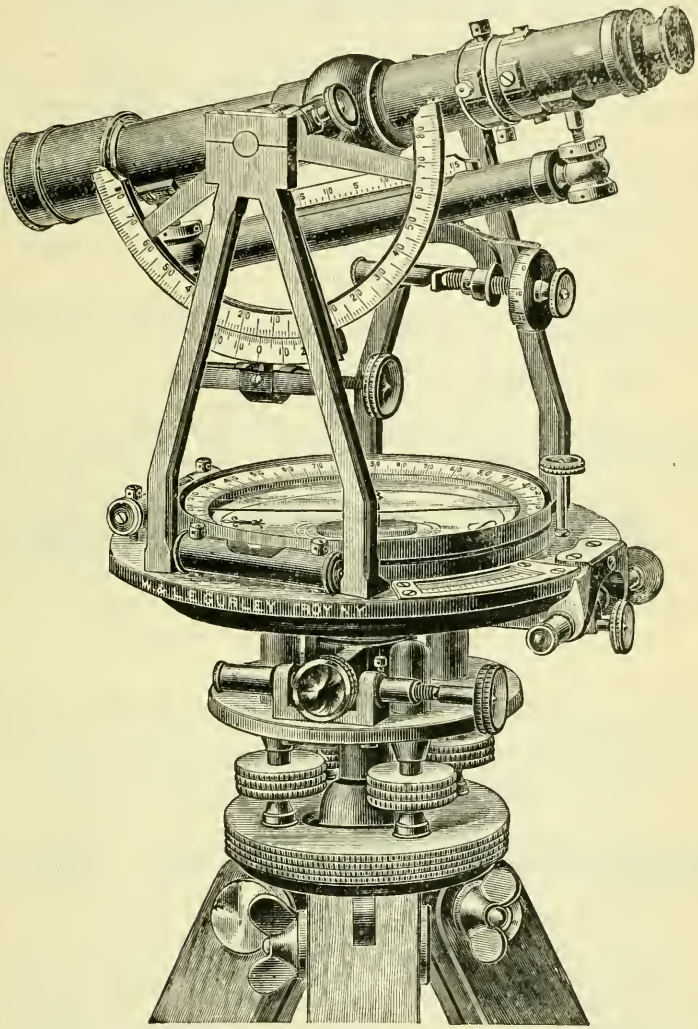

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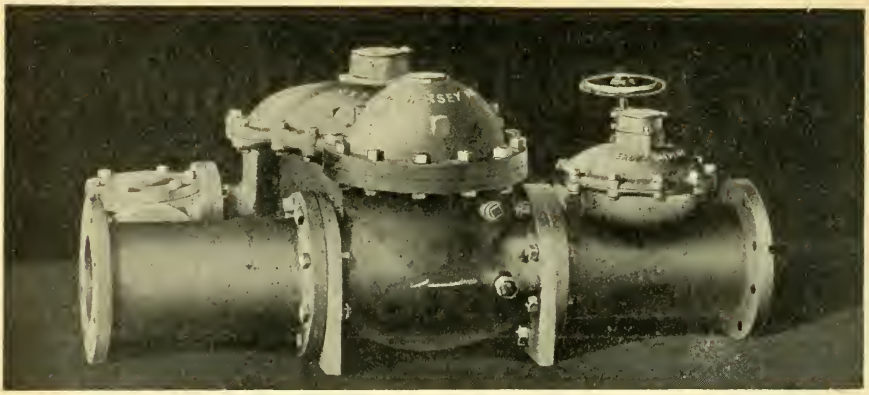

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MONTHLY BULLETIN.

NEW SERIES. JANUARY, 1911 No. 48

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

January 25, 1911. Regular meeting in Chipman Hall at 7.30 P. M. Paper on Brooklyn Dry Dock.

January 25, 1911. Excursion to Cambridge Subway at 3 P. M.

January 31, 1911. Dinner of Boston Engineers at Hotel Somerset, at 6 o'clock, P. M.

February 1, 1911. Special meeting of Sanitary Section.

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, January 25, 1911, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Lieut. F. R. Harris, U. S. N. will give a lecture describing the principles of the Design and the Methods of Construction employed in Dry Dock No. 4 at the Brooklyn Navy Yard. He will also give a brief history of dry dock construction and design in this country and abroad.

It is also expected that Mr. T. B. Bryson, engineer in charge of the pneumatic work at this dry dock and Mr. J. W. Rollins, President of the Holbrook, Cabot & Rollins, Corp., contractors for the work, will discuss the construction now in progress.

The lantern will be used.

BUSINESS OF THE MEETING:—To choose a Committee of Five to nominate officers for the ensuing year.

S. E. TINKHAM, *Secretary.*

EXCURSION.

The officials of the Boston Elevated Railway Company and Harry P. Nawn, President of the Hugh Nawn Contracting Company, have invited the members of the Boston Society of Civil Engineers to visit the work now under construction on the Cambridge Main Street Subway, January 25, 1911.

The party will assemble at the west end of the Cambridge Bridge, at the Incline of the Cambridge Main Street Subway, at 3.00 P. M. The members will then walk through the subway toward Harvard square inspecting the subway and the stations at Kendall square and Central square, arriving at Harvard square at about 4.00 P. M., where the party will then inspect the portions of the station now built and the construction now going on.

For a description of the work members are referred to the News Items in this and previous issues of the Monthly Bulletin, especially the January, 1910 Bulletin.

An opportunity will also be afforded to visit the Surface Car Barns on Murray street, now under construction, also the Murray street Yard and concrete plant.

Members who intend joining in this excursion are requested to reply promptly on the inclosed postal card.

EXCURSION COMMITTEE.

ENGINEERS' DINNER, JANUARY 31, 1911.

Arrangements have been made for a dinner of the engineers of Boston and vicinity at the Hotel Somerset on Tuesday evening, January 31, 1911.

The dinner will be in charge of the Boston Section of the American Institute of Electrical Engineers. Committees from the American Society of Mechanical Engineers and the Boston Society of Civil Engineers cooperating the same as a year ago.

The guest of honor will be Prof. Elihu Thomson. The other speakers of the evening will include: Richard C. Maclauren, President of the Massachusetts Institute of Technology, and the Presidents or other representatives of the American Institute of Electrical Engineers, American Society of Civil Engineers, and the Boston Society of Civil Engineers.

Special notices of this dinner will be sent to members in the vicinity of Boston. Other members who may desire to attend will be cordially welcomed and the Secretary will make arrangements for tickets for any who may communicate with him.

FEBRUARY MEETING OF THE SOCIETY.

At the regular meeting to be held February 15, 1911, Mr. Walter McCulloh, Consulting Engineer, New York State Water Supply Commission, will read a paper entitled "Water Resources of the State of New York." The lantern will be used.

FEBRUARY MEETING, SANITARY SECTION.

A special meeting of the Sanitary Section, Boston Society of Civil Engineers, will be held on Wednesday evening, Feb. 1st., 1911, at the Boston City Club.

The speaker of the evening will be Professor Samuel C. Prescott of the Massachusetts Institute of Technology, who will present a paper on the "Boston Milk Supply." This will be illustrated by numerous lantern slides and it is expected that several experts and city officials will be present to enter into the discussion.

BINDING THE JOURNALS.

Members who wish the Secretary to attend to the binding of their numbers of the *Journal* are requested to send them to Room 715, Tremont Temple, Boston, before March 1st.

Arrangements have been made by which members can have the *two* volumes bound in *one* for 70 cents, or each volume bound separately for 40 cents each; the style of binding to be the same and uniform with that of former years. Mark clearly which way it is desired the binding should be done.

MEMBERSHIP CARDS.

The membership cards for 1911 are now ready for distribution and one will be mailed to any member who applies to the Secretary.

APPLICATIONS FOR MEMBERSHIP.

[January 18, 1911.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-Laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to examine this list of applicants and to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidate, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as references, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider these applications until the expiration of twenty (20) days.

GREENOUGH, MAURICE BROWN, Tufts College, Mass. (Age 19, b Groveland, Mass.) He is a member of the Junior Class in Structural Engineering at Tufts College. Refers to S. L. Conner, E. H. Rockwell, F. B. Sanborn and J. I. Tucker.

HARRIS, CARL CHESTER, Orange, Mass. (Age 31, b. Orange Mass.) Educated in public schools of Orange, Mass., and Worcester Polytechnic Institute, graduating in 1903. From 1903 to date with Rodney Hunt Machine Co., Orange, Mass. 1903–1905 drafting room experience, including estimates, costs, etc; 1905 to date associate engineer with above company; 1907–1908 supervising charge of concrete dam, power station, 2½ mile transmission line, electric equipment etc. of hydro-electric development for electrically operating works of Rodney Hunt Machine Co. Has also designed and supervised installations of water wheel-electric power equipments, including rotary fire pump apparatus; specializing in water wheel electrical apparatus and rotary fire pump equipments. Refers to H. K. Barrows, R. A. Hale, L. P. Kinnicut and A. T. Safford.

MCMURRAY, JAMES ALOYSIUS, Dorchester, Mass. (Age 34, b. Boston, Mass.) Educated in grammar school and Boston Latin School. Entered office of the City Engineer of Boston as rodman, in 1896; advanced to

instrumentman in 1903, and to grade of assistant engineer in 1907 and at present employed in same capacity. Refers to C. J. Carven, F. H. Fay, F. A. McInnes and F. I. Winslow.

PALMER, JOHN ELDEN, Dorchester, Mass. (Age 46, b. Bridgton, Me.) Received education in high school and through private instruction. From 1886–1896 in office of Ernest W. Bowditch, as rodman, transitman, head of party and in charge of work; 1896–1904 with Boston Transit Commission as Division Engineer, engaged on subway construction; 1904–1906 in partnership with Charles R. Gow, Contractor, and from 1906 to date in business for himself in contracting work. During a short interval, while with the Boston Transit Commission, he worked for the Mass. Highway Commission, as resident engineer. Refers to E. S. Davis, L. L. Street, L. D. Thorpe, F. I. Winslow and J. R. Worcester.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE.

30. Graduate, Tufts College, Civil Engineering Course. 1899. Has had experience in water works and sewerage construction, town and city work and general surveying. Salary desired $125 per month.

32. Member. Fourteen years' experience on mill construction, power plant, piping, inspection and supervision of surveys, etc. Desires position with mill engineer or as inspector on construction. Salary desired $100 per month.

33. High School education. Desires position as time-keeper.

34. Ten years' experience in general surveying and construction work on reservoirs and Charles River Basin construction. Salary desired $100 per month.

35. Six years' experience as time-keeper, transitman and inspector on construction, mostly in the line of landscape engineering. Desires position as transitman or inspector. Salary $15 per week.

36. Graduate, Mass. Inst. Technology. Six years' experience on U. S. Reclamation Service, railroad location and construction and maintenance of way work. Desires position as transitman or on field work.

37. Five years' field and office practice in general surveying and town and city work and dam and reservoir construction. Desires position as transitman or draftsman. Salary $75 per month.

38. Member. Graduate, Tufts College, 1910. Has had some experience in concrete and structural steel work. Desires position as inspector or rodman on outside work. Salary $60 per month.

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C. H. UMSTEAD, Supt. of Construction, U. S. Public Buildings, Hot Springs, Arkansas.

DEATH

BURTON I. DRISKO . . . . . Died, Jan. 8, 1911.

MINUTES OF MEETING.

DEGEMBER MEETING OF THE SOCIETY.

Boston, Dec. 21, 1910.—A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.45 o'clock, P. M., President Henry F. Bryant in the chair, 95 members and visitors present.

It was voted to dispense with the reading of the record of the November meeting, and to approve the same as printed in the December Bulletin.

The President reported that the following had been elected to membership in the grades named:—

Members: — Messrs. Royall D. Bradbury, Harrison W. Hayward and William H. Lawrence.

Juniors: — Messrs. Lawrence H. Allen and William H. Morrison, Jr.

A memoir of Edwin P. Dawley, late a member of the Society, prepared by Past President George B. Francis, was presented and ordered to be printed in the Journal.

The President presented as the report of the Board of Government on the advisability of offering a prize for the best papers read before the Society, a report prepared by a committee of the Board and printed in the Dec. Bulletin.

On motion of Mr. Howe it was voted to accept the report and adopt the rules and recommendations contained therein and to confirm the action of the Board in accepting the gift and naming the medal for its donor.

The thanks of the Society were voted to Mr. Patrick McGovern and to Coleman Brothers for courtesies extended to members of the Society this afternoon on the occasion of the visit to the work now in progress on the Beacon Hill Tunnel.

The Secretary presented and read by title a paper by Charles H. Dutton, a member of the Society, entitled "The Design of Eccentrically Loaded Concrete Members Reinforced on One Face Only."

Mr. H B. Andrews, Engineer for Simpson Brothers Corporation, Boston, was then introduced and read a paper entitled "A New Theory for Reinforced Concrete Reservoirs."

The paper was discussed by Messrs. R. C. Allen, L. C. Wason, A. B. MacMillan, Bertram Brewer, F. A. Barbour and others,

the lantern being freely used to illustrate the original paper and the discussions.

After passing a vote of thanks to Mr. Andrews for his very interesting paper, the meeting adjourned.

S. E. Tinkham, *Secretary.*

DECEMBER MEETING OF THE SANITARY SECTION.

A special meeting of the Sanitary Section, Boston Society of Civil Engineers, was held at the Boston City Club on Wednesday evening, December 28, 1910.

The speaker of the evening was Mr. Charles Saville, late Assistant Engineer of the Massachusetts State Board of Health, and at the present time Assistant Engineer of the Sewerage Department of the Emscher-Genossenschaft, Essen, Germany.

Mr. Saville described considerably in detail and in a very interesting manner the comprehensive work of sewerage and drainage that is being carried on in this district of Germany tributary to the Emscher River.

In the treatment of sewage the method employed is to use the Imhoff subsidence or clarification tank, which removes the suspended solids automatically and continuously, and at the same time provides for the complete decomposition of the solid matter in a septic chamber in the lower part of the tank, the contents of which are not allowed to come in contact with the sewage flowing through the upper or sedimentation chamber. The other important feature in this method of sewage treatment consists in getting the sewage out of the cities and towns and into the river channels as soon as possible. This is being effected by reconstructing the whole system of channels with concrete linings so that the velocity of flow is very rapid and smooth. This work was begun in 1904, and will be completed in perhaps another year, and the final effectiveness of this method of treatment will not be certainly known until after that time.

Mr. Saville illustrated his remarks by the use of diagrams and lantern slides, and his paper was discussed by Messrs. Stephen De M. Gage, H. P. Eddy, E. B. Phelps and others. A written discussion from Mr. George W. Fuller of New York City was also received and read.

About sixty members of the Section, with guests, were present, and at the close of the meeting the thanks of the Section were expressed to Mr. Saville for his very clear and interesting description of this new and important work.

Mr. Saville returns to Germany at once, and the Section is much indebted to him for spending a considerable portion of his very brief vacation in this manner.

H. K. Barrows, *Clerk.*

LIBRARY NOTES.

The semi-weekly bulletin of the Massachusetts Legislature has been placed on file in the rooms.

Book Review.

Track Formulae and Tables by Shelby S. Roberts, C. E. 16mo. XII + 514 pp., 101 figures, 62 tables, morocco, $3.00 John Wiley & Sons, New York.

In the first third of the book the author has made a collection of some of the typical combinations of simple curves and straight lines which the railroad engineer will likely meet in solving track problems.

In considering frogs and switches the author regards switch rails and frog rails as tangents connected by simple curves. While this method involves the true conditions, yet the purely theoretical solution of ordinary switch and frog layouts is, admittedly, a useless refinement. On the other hand, if one is making a detailed analysis of a more complicated problem, it is the only proper way to secure a correct solution.

The writer of this review heartily agrees with the evident recommendations of the author that the best way for students to secure a good preparation for railroad engineering is by applying sound mathematical theory to solving the various problems that will confront them, particularly in the design of complicated yard layouts. Too much stress cannot be laid upon the student's need of thoroughly understanding numerous solutions of the highly varied combinations of curved and straight alinements. Hence it seems that this part of the work that deals with theoretical solutions of ordinary track layouts, should be particularly valuable to

college students, while on the other hand those solutions that deal with more complicated problems should make the book a valuable reference for the practicing engineer.

In addition to these chapters dealing with the solution of frog and switch layouts, there is included a chapter of miscellaneous formulae and rules of thumb, relating to bridge weights, foundations, train resistance, right of way, etc, While this is valuable information for one who is familiar with the subject and the conditions under which an application of these principles is to be made, yet these formulae and rules should not be used indiscriminately by persons who do not fully understand their true application.

Over one half of the book is composed of tables which include a number for use in track-work. These, no doubt, can be used to advantage in shortening field calculation necessary when staking out track connections that have not been previously calculated in the office. The remainder of these tables includes several of track data as proposed by the American Railway Engineering and Maintenance of Way Association, the usual logarithmic tables of numbers and functions of angles, a portion of Butt's Curve tables, Trautwine's table of Circular Arcs, etc.

In conclusion the writer considers that the book should be of value as a reference in the library of the practising engineer, and that it is well adapted for the use for which it was evidently intended, namely, as a college text for students in railroad engineering.

S. L. Conner.

Book Notice.

Manual of Surveying Instruments. W. and L. E. Gurley, Troy, N. Y. pp. 507, with twenty-four colored plates. Forty-fifth edition, 1910. Price 50 cents.

This thick catalogue is in striking contrast to those published twenty-five years ago, and marks a great change in the variety of instruments now demanded and used by the engineer or architect. Every kind of transit and level is described, and the adjustments explained. The current meter, hook gauge, telescopic hand level and every form of drawing instrument are also noticed. The colored plates add much so the attractiveness of the book and

some catalogue of this kind should always be at the right hand of every active engineer.

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RECENT ADDITIONS TO THE LIBRARY.

Government Reports.

Chief of Ordnance Dept., Watertown Arsenal tests—Annual Reports for 1903–1905–1907 and 1908.

Commissioner of Education, Annual Report for year ending June 30, 1910, Vol 1.

Office of Public Roads, Agricultural Dept.

58 Bulletins, including the following:

Steel track Wagon Roads, Martin Dodge.

Dust Prevention, L. W. Page.

Sand Clay Roads, W. L. Spoon.

Earth Roads, Roy Stone.

Wide Tires, Roy Stone.

Preservation of Iron and Steel, A. S. Cushman.

Effect of Water on Rock Powders, A. S. Cushman.

Cementing Power of Road Materials, L. W. Page.

Employment of Convicts, Roy Stone.

Traction Tests, S. T. Neely.

Decomposition of Feldspars, A. S. Cushman.

Macadam Roads, A. B. Fletcher.

Rocks for Road Building, E. C. E. Lord.

Road Materials of Maine, Leighton and E. S. Bastin.

Dust Preventives, Prévost Hubbard.

City and Town Reports.

Fall River Mass., Reservoir Commission.

Report on Quequechan River, by A. T. Safford.

Lawrence, Mass., Annual Report of City Engineer, 1908–09.

Philadelphia, Pa., Annual Report Dept. of Public Works, 1909.

Philadelphia, Pa., Annual Report Bureau of Surveys, 1909.

Plainfield, N. J., Report on Water Supply, Jas. H. Fuertes.

Miscellaneous.

C. H. Peabody and E. F. Miller, Steam Boilers.

I. R. Schmeitzner, Clarification of Sewage.

Hugh P. Tiemann, Pocket Cyclopaedia of Iron and Steel.

L. W. Trumbull, Underground Surveying.

Prévost Hubbard, Dust Preventives and Road Binders

Chas. V. Chapin, Sources and Modes of Infection.

W. and L. E. Gurley, Manual of Surveying Instruments.

American Water Works Assn. Report of Annual Convention, 1910.

H. W. Clark, Disposal and Purification of Factory Wastes.

The following twenty-one volumes, all the works of Herbert Spencer, are a recent gift of Mr. Clemens Herschel, C. E:

Autobiography. 3 vols.
Psychology, 2 vols.
Principles of Biology, 2 vols.
Principles of Ethics, 2 vols.
Principles of Sociology, 3 vols.
Essays, Scientific, Political and Speculative, 3 vol.
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Frederic I. Winslow, *Librarian.*

NEW ENGINEERING WORK.

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water St., Boston, before the first of each month.)

United States Government.—Navy Yard, Boston. Most of the construction work has been stopped on account of weather conditions. A contract recently has been awarded the Riverside Construction Company of New York for a new wooden pier between piers 4 and 5. This pier will be constructed of oak piles with yellow pine floor. It will be 350 feet long by 75 feet wide and will have a standard guage track connecting with the Yard railroad system.

Contract has been awarded C. M. Leach for Improvements to Pier No. 1. This is the old concrete pier, which is so badly disintegrated. It is proposed to put a new facing along the outside of this pier and to construct steel and concrete floors over such of the arches as are in the worst condition. A light concrete retaining wall will also be constructed along the inside line of the pier.

Sprinkler systems, standpipes, etc., are being installed in several buildings by contract.

Commonwealth of Massachusetts. — Harbor and Land Commission. — *Fish Pier at South Boston.* — At the new pier work continues about as reported last month, dredging, driving piles for foundation of wall along Northern Avenue, and putting in rip-rap for foundations of pier walls. Large stone for the pier is being delivered by vessels, but the placing of it has not yet begun.

South Channel of Mystic River. — The dredging continues as described last month.

Work at other places is either about completed or suspended for the winter.

Metropolitan Water and Sewerage Board. — *Water Works.* — All pipe laying has been completed or suspended for the winter, except on the new 36-inch low-service pipe line for supplying East Boston. At the tunnel under Chelsea Creek, between Chelsea and East Boston, the work of laying the 36-inch pipe in the tunnel and placing the concrete around it will be in progress until the latter part of the month.

Work was suspended on the rock tunnel on the Weston Aqueduct Supply Mains in Newton, on December 31, 1910. The rock excavation has been completed except for a little trimming which remains to be done. It is expected that work will be resumed on this tunnel the latter part of March, 1911, and that the work of placing the concrete lining will be begun early in April.

The work of installing a high-service pumping engine with a capacity of 40-million gallons per day, and boiler plant for same, is now in progress at the Chestnut Hill Low-Service Pumping Station. It is expected that the plant will be in operation in about two months.

City of Boston—Street Department.—Sewer Ditision.—*Stony Brook Conduit.*—Concrete Conduits, 20 ft. by 16 ft., and 17 ft. by 13 ft. 9 in. and a concrete sewer 2 ft. 8 in. by 4 ft., are now being constructed under contract between Arborway and point on Hyde Park Avenue, 75 ft. south of Tower Street, West Roxbury. The work now being constructed lies between Arborway and Forest Hills Square. The larger size has capacity of 2,000 cu. ft. per second; the smaller a capacity of 1,300 cu. ft. per second. The area tributary to the conduit at Forest Hills Square is about 6,200 acres. The sewer is designed to take the sewage from low lying territory adjacent to the Brook and at too low an elevation to be drained into existing mains; about 70 men are at present engaged on the construction work.

Boston Elevated Rialway Company—Cambridge Main Street Subway.—The subway proper is practically completed from the Main Street Incline near the west end of the Cambridge Bridge up to Harvard Square Station, a distance of a little over two miles. This includes the station at Kendall Square and Central Square. At Harvard Square the Mt. Auburn and the Arlington Inclines are completed, also portions of both the loading and unloading platforms for surface cars and trains. Work is being pushed day and night in the central portion of the station. Beyond Harvard Square the subway is practically completed up to the Boylston Street Terminal where some of the excavation has been done.

Cape Cod Canal. — At the end of the year work was well advanced, being nearly one-fourth completed, but on account of severe weather excavation work in Buzzards Bay has been tem-

porarily shut down. A channel from deep water to the mouth of the Monument River has been dredged from 25 to 10 feet in depth and work started on the canal section proper, near Buzzards Bay station. At the summit cut between Bournedale and Sagamore, a drag scraper excavator is making a preliminary cut.

At the Eastern end, near Sandwich, a mile and a half of canal is completed with the exception of the mouth at which point there is a depth of 16 feet at low water. Two dipper dredges and one hydraulic dredge are carrying on the work at this point.

Breakwater at the Sandwich mouth is half done. Work on it has been temporarily discontinued, to be resumed after the winter.

A wharf has been constructed at the Sandwich end and the contractors are receiving their coal and other supplies by water.

The work of relocating tracks for the Old Colony Division, N. Y. N. H. & H. R. R. is under way at Buzzards Bay, and a Strauss double track Bascule bridge of 160 feet span has been completed across the canal adjacent to the present Woods Hole Branch crossing.

At Bourne, a Scherzer Double Lift highway bridge of the same span is two-thirds completed, to take the place of the present old highway crossings at Buzzards Bay and Bourne. By spring it will be possible to discontinue the three old crossings through Buzzards Bay and Bourne and bring a dredging plant up the Monument River.

Boston Transit Commission.—Section 1 of the Tunnel under Beacon Hill is being driven by means of a roof shield which is in operation under Beacon Street, where the top of the arch is about 50 feet below the surface. The side-wall drifts are now through to the shaft in the Common. About 125 feet more of work with the shield remains to be done. In Section 2 the station and approach tunnels are being driven between shafts by means of a series of drifts. Shaft No. 1 is near Joy street and Shaft No. 2 is near the Brewer Fountain. The sequence of the work in general is as follows: — Side-wall drifts are first driven and backwalls, waterproofing and side-walls built therein. A center crown drift is then driven and connected by cross drifts with the side-wall drifts. Successive concrete arch rings are turned in these cross drifts, after which the core is removed and the concrete invert placed Work is also in progress under the Park-street station of the

Tremont-street Subway, which requires the supporting of the old structure while the new work is being built below. The earth from under this station is being taken up to hoppers by means of conveyors and dumped into cars which are taken out by the Elevated Railway Co. between the hours of 12.30 A.M. and 5.00 A.M. to the Back Fay Fens, where the earth is disposed of.

Patrick McGovern is the Contractor for Section 1 and Coleman Bros. for Section 2.

Boston & Albany Railroad.—East Greenbush.—One and one-half ($1\frac{1}{2}$) mile extension of third track.

State Line.—Construction of new two-track tunnel and 0.6 mile extension of third track.

Westboro.—New brick Freight House, 40′x97′.

Milford.—Moving and enlargement of Freight House.

The Ambursen Hydraulic Construction Company reports that thirteen dams have been built the past year by that Company, of which eight are completed. Those now under construction are as follows;

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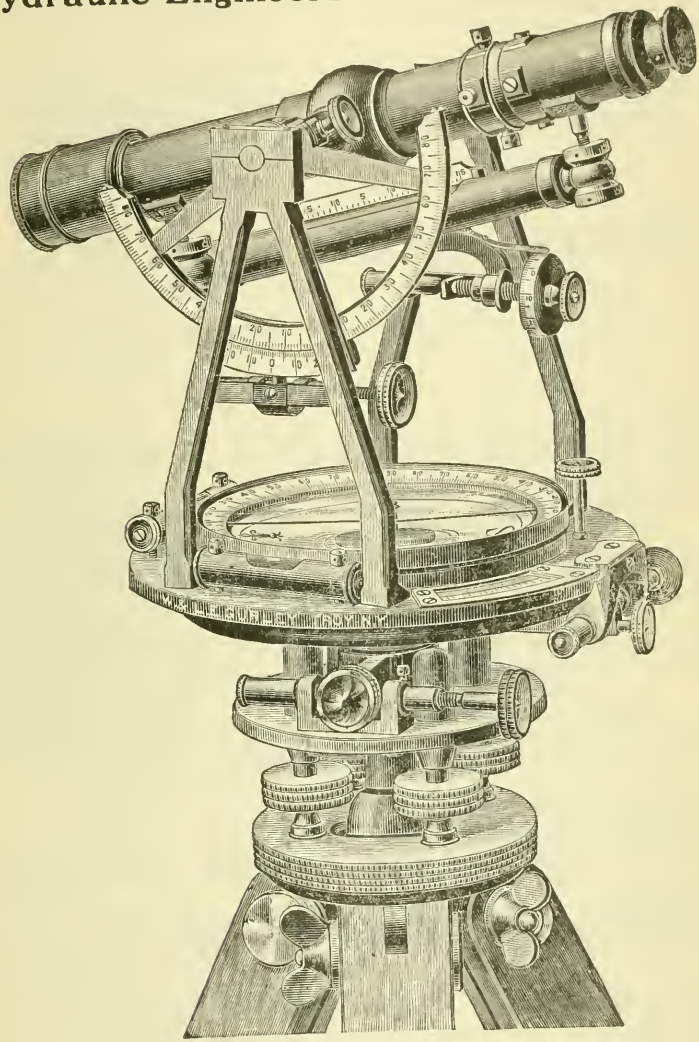

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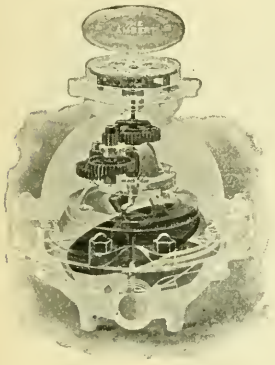

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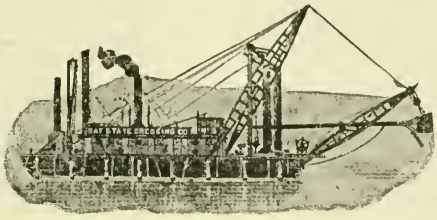

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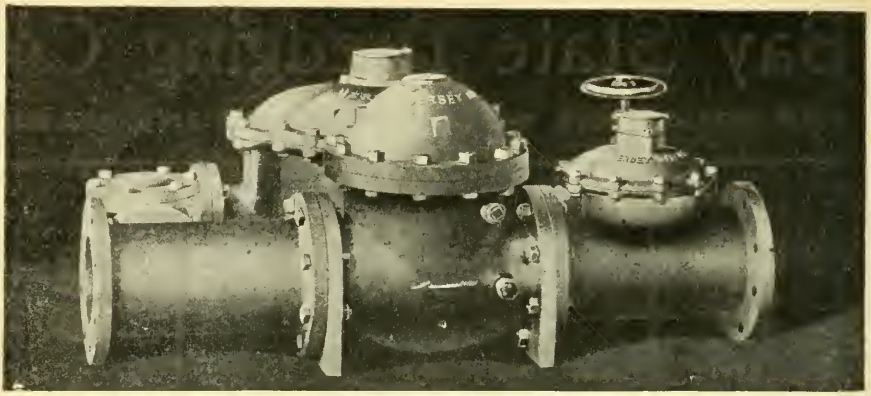

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BOSTON SOCIETY OF CIVIL ENGINEERS.
ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. FEBRUARY, 1911 No. 49

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

February 15, 1911. Regular meeting in Chipman Hall at 7.30 P. M. Paper on Water Resources of the State of New York.
February 15, 1911. Excursion to the Custom House, Boston, at 1 P.M.
February 17, 1911. Meeting of Institute of Electrical Engineers.
March 1, 1911. Annual Meeting of Sanitary Section.
March 15, 1911. Annual Meeting of the Society.
Binding Journals. Membership cards.

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, February 15, 1911, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. Walter McCulloh, Consulting Engineer, New York State Water Supply Commission, will read a paper entitled "Water Resources of the State of New York." The lantern will be used.

S. E. TINKHAM, *Secretary.*

EXCURSION.

Though the courtesy of Mr. Orlando W. Norcross, the members of the Boston Society of Civil Engineers are invited to visit the work now under construction on the deep caisson foundations of the new Custom House at the foot of State St., Boston, Mass. The members will find this work of peculiar interest because of the very unusual conditions. The caissons are all down about 60 feet, and, notwithstanding the fact that 540 tons pressure in addition to dead weight of 600 tons have been applied to each caisson they have so far failed to move deeper. It is said that the old building is on piles driven but from four to six feet into clay.

Members will meet at the construction office on the south side of the Custom House at 1 P. M. Wednesday, February 15th.

For future information see item under Engineering Work in this number of the **Bulletin.**

EXCURSION COMMITTEE.

ANNUAL MEETING.

At the January meeting of the Society it was announced that the principal features of the annual meeting of last year which proved so generally acceptable, would be repeated this year.

The meeting will be held on Wednesday, March 15th, at the Boston City Club, 9 Beacon St., Boston, where the very satisfactory accommodations of former years have been secured.

The Annual Meeting for the transaction of business and the announcement of the result of the letter ballot for officers will be held at 12 o'clock M. A short address will be made by the retiring president.

The Annual Dinner will be served at half past two o'clock in the Auditorium of the Club.

In the evening a Smoker will be held in the Auditorium at which light refreshments, music and other entertaining features may be expected.

Further details will be furnished in a special circular to be sent out early next month and in the March *Bulletin*.

ANNUAL MEETING OF SANITARY SECTION.

The annual meeting of the Section will be held at the Boston City Club on Wednesday evening, March 1, 1911.

At this meeting the annual reports will be presented for the past year and officers elected for the ensuing year. A report is also expected from the committee appointed at the December meeting last to revise the by-laws of the Section to conform with recent changes made in those of the main society.

The topic for discussion during the evening will be announced in the special notice sent to members of the Section a few days before the meeting.

MEETING OF AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.

The two hundred and fifty-seventh meeting of the American Institute of Electrical Engineers will be held in the auditorium of the Edison Electric Illuminating Company, 39 Boylston Street, Boston, Mass., on Friday evening, February 17, 1911. The meeting will be held under the auspices of the Boston Section of the A. I. E. E., with the co-operation of the Boston Society of Civil Engineers and the American Society of Mechanical Engineers. A

paper entitled "Unlimited Interconnection of Electrical Networks" will be read by Mr. R. A. Philip, of the Stone and Webster Engineering Corporation. The paper covers a study of the factors governing the extension and growth in transmission systems and their interconnection, assuming constant potential conditions throughout a system.

BINDING THE JOURNALS.

Members who wish the Secretary to attend to the binding of their numbers of the *Journal* are requested to send them to Room 715, Tremont Temple, Boston, before March 1st.

Arrangements have been made by which members can have the *two* volumes bound in *one* for 70 cents, or each volume bound separately for 40 cents each; the style of binding to be the same and uniform with that of former years. Mark clearly which way it is desired the binding should be done.

MEMBERSHIP CARDS.

The membership cards for 1911 are now ready for distribution and one will be mailed to any member who applies to the Secretary.

APPLICATIONS FOR MEMBERSHIP.

[February 8, 1911.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-Laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to examine this list of applicants and to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidate, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as references, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider these applications until the expiration of twenty (20) days.

BATES, BENJAMIN FRANKLIN, Boston. (Age 49, b. Cambridge, Mass). Graduate, Cambridge High School, 1881. From 1881 to 1887 with City Engineer, Cambridge, in various positions up to assistant to resident engineer on Stony Brook Reservoir at Waltham and Newton; Dec. 1887 to June 1888, assistant engineer, preliminary surveys, Nicaragua Canal; Oct. to Dec. 1888, Assistant engineer, field work, Boston Heating Co., Jan. 1889 to Feb. 1891, in charge of party on field work, West End St. Ry. Co.; April 1891 to Jan. 1911, with Engineering Dept. Boston, as transitman and asst. engr. on street construction and repairs; and at present, asst. engr. Public Works Dept. Boston. Refers to H. S. Adams, F. A. McInnes, A. L. Plimpton, and S. E. Tinkham.

HASKELL, ALFRED E. Boston. (Age 44, b. Medford, Mass.) Graduate, Medford High School 1885; Graduate Tufts College, Mass. Engineering School, College of Arts, 1888; degree, Bachelor Mechanical Arts. From 1885 to 1888, during summers, with E. P. Adams C. E. and City Engineer of Lynn. 1888 made atlas of Middlesex Co. (about 30 towns) for G. H. Walker & Co.; 1889 with Boston Improved Sewerage; 1889 to 1891 with F. L. Olmsted & Co. Brookline, landscape architects, in charge of work, as executive engineer, at Bar Harbor, Me. estate of Geo. W. Vanderbilt; also as assistant engineer at Biltmore N. C. estate of Geo. W. Vanderbilt; and since 1891, assistant engineer, Engineering Dept. Boston. Now assistant engineer, Public Works Dept. Boston. Refers to E. P. Adams, H. H. Carter, M. T. Cook, F. H. Fay. Henry Manley, and F. A. McInness.

SCHWARTZ, SAMUEL, East Billerica, Mass. (Age 22, b. Rekof, Russia.) Graduate of Lowell High School in 1906. May to December, 1907, with Smith & Brooks of Lowell, as rodman and computor; April, 1908 to August, 1908, and from June to September, 1909, with Harbor and Land Commission, as rodman and transitman. Entered Engineering Department of Tufts College in September, 1908 and is now in his third year. Refers to S. L. Connor, E. H. Rockwell, F. B. Sanborn and J. I. Tucker.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE.

39. Member. Twelve years' experience on municipal, railroad and general surveying and engineering. Desires position as inspector of work, transitman, chief of party etc. Salary desired $75 per month.

40. Three years' experience on land surveying, concrete construction, hydrographic surveying, drafting and railroad work. Desires position as engineer's assistant on construction work in vicinity of Boston. Salary desired $80 per month. Degree of permanency to be considered.

41. Graduate, University of Vermont, 1909. Has had about one year experience on filtration and bacteriological work. Desires position on water supply work.

MINUTES OF MEETING.

JANUARY MEETING OF THE SOCIETY.

Boston, Jan. 25, 1911.—A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.45 o'clock, P. M., President Henry F. Bryant in the chair, 95 members and visitors present.

It was voted to dispense with the reading of the record of the December meeting and to approve the same as printed in the January Bulletin.

The President reported that the following had been elected to membership in the grades named: —

Members: — Messrs. Harold O. Butler, Ivan A. F. Chisholm James T. Frame and Fred W. Lang.

Juniors: — Messrs. Conrad Nolan and Lawrence G. Rice.

The President stated that it was proposed to hold a meeting on April 5, 1911 to which the students in civil engineering at the Institute of Technology, at Harvard University and at Tufts College, would be invited to be present as guests of the Society.

On motion of Mr. Winslow, the President was requested to appoint a committee of three to report to this meeting the names of five members to serve as a committee to nominate officers for the ensuing year. The President appointed Messrs. E. W. Howe, A. H. Howland and J. N. Ferguson as the committee.

This comittee reported later in the meeting the following names, and by vote of the Society, they were chosen as the Nominating Committee, — Richard A. Hale, Harold K. Barrows, George D. Emerson, Frank B. Sanborn and Sturgis H. Thorndike.

The President reported for the Board of Government that it had voted that the annual meeting this year and other functions connected with it would be similar to those of last year.

The Secretary read a communication from the United Improvement Association of Boston in relation to legislation providing for the building of ten miles of sidewalk each year, in the suburban districts of Boston. The Association asked that action be taken by the Society on a proposed bill having this end in view. The President stated that the Board of Government had considered the matter and inasmuch as a large percentage of our members were not citizens of Boston, recommended that it was inexpedient for the Society to act in the matter. On motion of Mr. French, the recommendation of the Board was adopted.

A letter from Past President George B. Francis was read in in relation to proposed legislation providing for the licensing of civil engineers in the various states, and enclosing a copy of the action taken by the American Society of Civil Engineers on the subject.

Mr. Sherman presented the following resolutions prepared by the Board of Government and moved that they be adopted by the Society.

Whereas, law requiring the licensing of engineers have been suggested in the legislatures of several states, and

Whereas, the membership of the Boston Society of Civil Engineers is scattered over practically the whole United States and the practice of its members is still more widely diversified, and

Whereas, there are Societies of engineers in the United States, membership in which can only be secured after rigid examination of the fitness of applicants to practice as engineers, and

Whereas, the public has ample protection if they will employ only those who have thus demonstrated their ability; be it

Resolved, that the Boston Society of Civil Engineers does not deem it necessary or desirable that engineers should be licensed in any state.

By a unanimous vote the Society adopted the resolutions.

Memoirs of Past President George L. Vose, prepared by Professors Alfred E. Burton and George F. Swain, and of William Jackson, prepared by Messrs. Desmond FitzGerald, E. D. Leavitt and F. H. Fay, were presented and ordered printed in the Journal of the Association of Engineering Societies.

On motion of Prof. Moore, the thanks of the Society were voted to the officials of the Boston Elevated Railway Co., and to Mr. H. P. Nawn, President of Hugh Nawn Contracting Co., for courtesies extended to members on the occasion of the visit to the Cambridge Main Street Subway this afternoon.

The speaker of the evening, Lieut. Frederic R. Harris, Civil Engineer, U. S. N. was then introduced and gave a very interesting lecture entitled "Dry Docks and Dry Dock Construction and a Description of the Construction of Dry Dock No. 4 at the Brooklyn Navy Yard."

Mr. J. W. Rollins, President of the Holbrook, Cabot & Rollins Corporation, the contractors for the work, followed with an account of the plant and the method of construction at the Brooklyn Dry Dock. The lantern was used by both speakers to illustrate their remarks.

At the close of the discussion which followed, the thanks of the Society were voted to Lieut. Harris for his interesting paper. Adjourned.

S. E. Tinkham, *Secretary.*

FEBRUARY MEETING OF THE SANITARY SECTION.

A special meeting of the Sanitary Section, Boston Society of Civil Engineers, was held at the Boston City Club on Wednesday evening February 1, 1911.

The speaker of the evening was Professor Samuel C. Prescott. of the Mass. Institute of Technology who presented a paper on "The Milk Supply of Boston, its Sources. Quality and Sanitary Importance."

Professor Prescott gave a most interesting discussion of this subject, showing by lantern slides the areas from which the milk supply is obtained and the general routes by which it is carried to Boston. The conditions met with at the farms were also shown, as well as some of the conditions obtaining in the city in the case of some of the smaller distributors, at stores, etc. Several illustrations were also given of the more improved conditions at the farms and supply depots which have been brought about by inspection.

The essential in getting a good milk supply seems to be cleanliness in all respects at the farm and in transportation and delivery, and the maintaining of the milk at a temperature as low as 50° F.

In the three or four years during which inspection of milk has been carried on great improvement has been brought about, and a very large percentage of the milk sold at present is of satisfactory quality as regards bacterial content.

Professor Prescott suggested that the members of the Sanitary Section could readily appreciate that the cost of milk must be somewhat more under satisfactory inspection than was formerly the case with no inspection. As sanitary engineers, we can appreciate the necessity and importance of this inspection and see clearly that this slight additional cost is well worth while and do whatever is possible to encourage work of this nature, and as consumers cheerfully pay the additional cost involved thereby.

Professor Prescott's paper was discussed by several of the most expert authorities upon this important subject and the discussion was most interesting.

Dr. Mark W. Richardson, Secretary of the Massachusetts State Board of Health, described some of the features of this question from the point of view of the State authorities.

Dr. Alexander Burr, of the Health Department of the City of Boston, described the method of inspection and rating used at the farms which supply milk to the City.

Mr. Charles F. Whiting, of D. Whiting & Sons Co., and Mr. Robert M. Burnett, of the Deerfoot Farms Dairy also discussed Professor Prescott's paper from the point of view of the producer.

The Hon. John F. Cusick gave a very interesting resume of the laws that have been passed by the State Legislature with regard to milk supply, and also made some suggestions regarding desirable legislation. Mr. Cusick feels that much of the legislation heretofore has been illadvised and harmful. He is firmly of the opinion that it would be better to allow milk below the standard to be sold, when plainly marked as such, rather than to forbid its sale when below standard, as is required by the present law, which often unjustly penalizes the milk seller.

About forty members of the Section and guests were present and at the close of the meeting a vote of thanks was extended to the various gentlemen who were present and participated in the discussion.

H. K. Barrows, *Clerk.*

LIST OF MEMBERS.

ADDITIONS.

HAROLD O. BUTLER	92 State St., Boston, Mass.
IVAN A. F. CHISHOLM	B. & A. Engineering Dept., Houlton, Me.
JAMES T. FRAME	84 Lincoln St., Melrose, Mass.
CONRAD NOLAN	120 Curtis St., Tufts College, Mass.
LAWRENCE G. RICE	Box 357, Fitchburg, Mass.

CHANGE OF ADDRESS.

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PAUL HANSEN	Bowling Green, Ky.
W. H. MORRISON, JR.	8 Auburn St., Nashua, N. H.
A. S. TILESTON	36 Cleveland St., Arlington, Mass.
J. W. TOWER	1303 Fifth Ave. B'ld'g., New York City.
ALLEN VAN RENSSELAER	Care of Washington Water Power Co., Spokane, Wash.

DEATHS.

JOSEPH R. CARR	Died, January 27, 1911.
LOUIS E. HAWES	Died, January 29, 1911.
LEONARD P. KINNICUTT	Died, February 6, 1911.

LIBRARY NOTES.

RECENT ADDITIONS TO THE LIBRARY.

U. S Government Reports.

Delivery of Water to Irrigators. Frank Adams.
Cranberry Marshes of Wisconsin. Henry J. Cox.
Explosibility of Coal Dust. Geo. S. Rice.
Primer of Explosives. Monroe and Hall.
Purchase of Coal with Analyses. Geo. S. Pope.
Washing and Cooking Tests of Coal. Belden and Delamater.
Coke Industry of U. S. Moldenke.
Volatile Matter of Coal. Porter and Ovitz.
North Dakota Lignite. Randall and Kreisinger.

State Reports.

Mass. Harbor and Land Comrs. Annual Report for 1910.

City and Town Reports.

Keene, N. H. Annual Report of Sewer Department for 1910.
New York City Annual Report B'd of Water Supply for 1909.

Miscellaneous.

American Civil Engineers' Pocket Book. Mansfield Merriman.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK.

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water St., Boston, before the first of each month.)

Commonwealth of Massachusetts. — HARBOR AND LAND COMMISSION.— *Fish Pier at South Boston.*— For the new pier being built at south Boston, broken stone and gravel are being placed for foundation and back ballast of the wall, and some general filling is being done. The docks are being dredged. It is expected that laying stone for the heavy wall under water will soon begin, for which divers will be employed.

Near the Mosquito Fleet Yacht Club-house, on the southerly side of South Boston, about 1,800 feet in length of the channel is being dredged to a depth of 7 feet at mean low water, making the channel 275 feet in width.

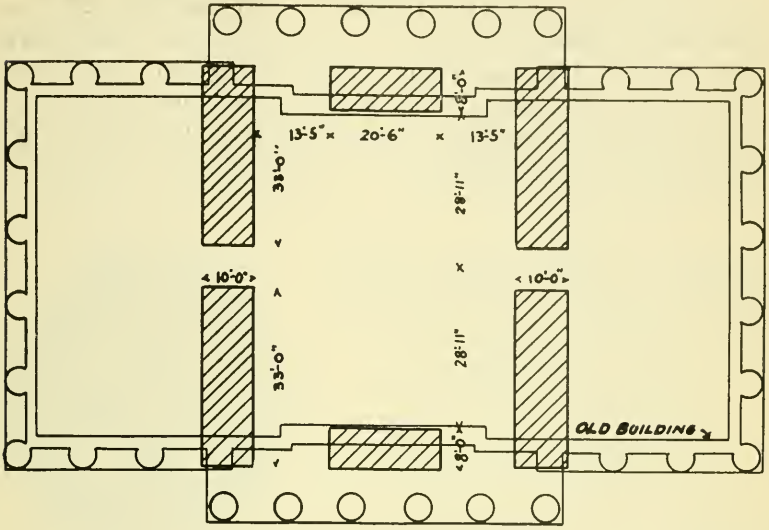
AT PLYMOUTH — The channel leading to the Cordage Company's works is about completed. A dredge is removing shoals except when employed by the Plymouth Cordage Company in digging an anchorage basin at their wharf.

Boston, Mass.—The Norcross Bros. Co. are building the foundations for the addition to the U. S. Custom House. This addition is in the form of a tower 63 ft. by 67 ft. rising in the centre of the old building to a point about 500 ft. above the curb. It is to be carried on six caissons, four of them 10 ft. by 33 ft. and two 8 ft. by 20 ft. 6 in., sunk about 100 ft. to ledge. Messrs. Peabody and Stearns are the architects.

The present building, completed in 1849, is a massive, well bonded structure about 140 ft. by 95 ft. with a portico on two sides projecting about 10 ft. It rests on a well bonded platform of granite levelers at least two courses thick under the entire building, and wherever the piers are near together there is probably a third course. This platform rests on pointed piles from 7 ft. 6 in. to 11 ft. 6 in. long penetrating the clay from 2 to 4 ft. The space between the clay and granite is filling about six feet thick, and pieces of crockery have been found about six feet below the tops of the piles.

The building weighs possibly 30,000 tons, or about two tons per sq. ft., and according to old records there are 3,000 piles, so that each pile carries possibly 10 tons.

Tests made by the contractors on the clay 26 ft. below the curb, show a resistance of 9.5, 13 and 16 tons per sq. ft. without moving in 7 days.



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The contractors state that from the best obtainable data that the building has settled in the period 1879–1900 a total of approximately 6 in.

The contractors have had considerable trouble in sinking the caissons, on account of the high friction in the clay and because there is not head room to build up the caissons enough to get the required weight. The caissons are down about 60 ft. and the large ones weigh about 1100 tons, and the addition of 540 tons of castings has failed to move them. So far no upward pressure has been noticed.

New York, New Haven & Hartford Railroad.—Elimination of Grade Crossings at Boston. Satisfactory progress has been made on the above work. Bridges and filling have been completed for two tracks, and main line traffic was turned onto the high level on January 29th. Connection is now

being made with the high level track on the Shawmut Branch, and the work of putting in masonry and filling for two additional tracks on the main line is under way.

Elimination of Grade Crossings at Worcester, Mass.— Steel work for the viaduct and for the tracks of the New York, New Haven & Hartford R. R. between Worcester and South Worcester is now in place. The placing of concrete for the floor and platform of the viaduct has been in progress for the last two months, and is now about two-thirds completed.

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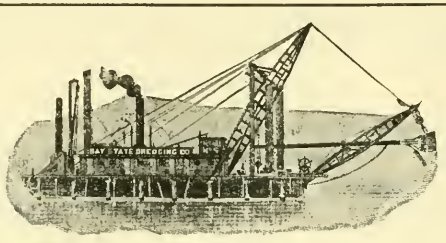

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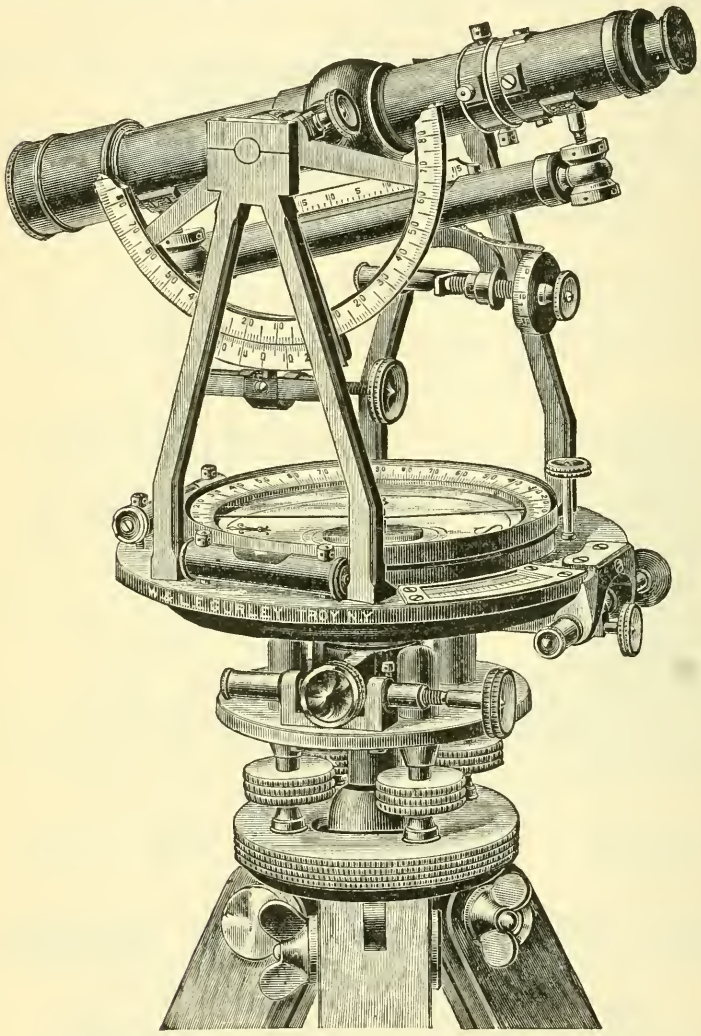

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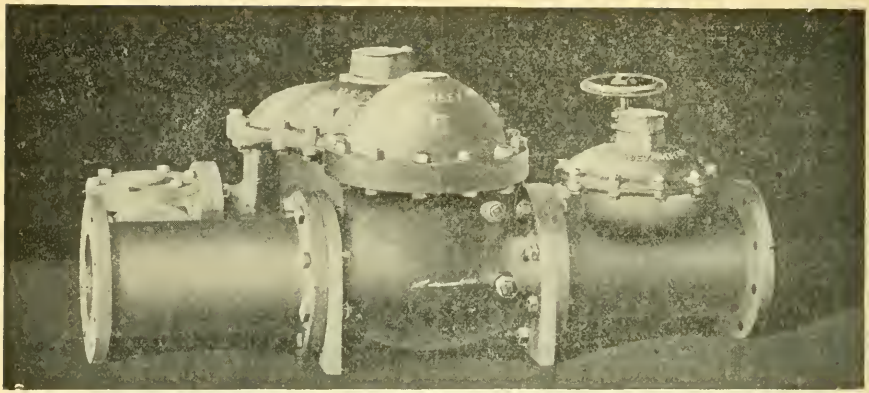

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ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. MARCH, 1911 No. 50

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

March 15, 1911. Annual meeting at the Boston City Club at 12 o'clock M.

March 17, 1911. Meeting of American Society Mechanical Engineers. at 8 o'clock P.M.

April 5, 1911. Students' meeting at the Boston City Club at 7.30 P.M.

ANNUAL MEETING, MARCH 15, 1911.

The annual meeting of the Boston Society of Civil Engineers will be held at the Boston City Club, 9 Beacon Street, Boston, on Wednesday, March 15, 1911.

As previously announced the annual meeting this year will consist of three principal features: a business meeting at noon, the annual dinner in the afternoon and the smoker in the evening

PROGRAM.

Business Meeting. — The annual meeting required by the Constitution will be called to order at 12 o'clock M., in Rooms 4 and 5, on the third floor of the Club House.

BUSINESS. — Announcement of the election of new members.

To receive the annual reports of the Board of Government, of the Treasurer and of the Secretary.

To receive the annual reports of the several special committees.

To reappoint the several special committees.

Announcement of the result of letter-ballot for officers for the ensuing year.

Address of the retiring President.

Annual Dinner. — The 29th annual dinner will be served at 2.30 P. M., in the Auditorium on the fourth floor of the Club House.

The price of tickets for the dinner will be $2.00 per plate. Members are at liberty to invite guests to the dinner as usual.

The subject of the after dinner talk, at 4 o'clock, will be "The electrification of the steam railroads in the Boston Metropolitan District."

Professor George F. Swain will open the subject from the point of view obtained in the recent investigation and report by the "Big Four" Commission.

Mr. W. S. Murray, Chief Electrical Engineer for the New Haven Road, will discuss the general subject and exhibit lantern slides of existing work.

Professor Dugald C. Jackson will also discuss the subject.

The meeting will be open to those who do not find it convenient to attend the dinner.

Smoker. — An informal smoker will be held in the Auditorium, beginning at 7 o'clock P. M. For the past two years this feature of the Annual Meeting has been so thoroughly enjoyed by members and their guests that it has been decided not to make any material change in the program of last year, other than adding a short special entertainment. The exercises will be as informal as in the past; the music will be of the same character, the old songs and possibly some new ones will be sung, and light refreshments will be served.

The plan adopted last year, which proved very satisfactory, will be repeated this year, and each member is asked to contribute his share towards the expenses of the Smoker by purchasing a ticket, the price of which has been placed at $1.

Registration, Tickets and Badges

Members and guests who attend any of the functions of the annual meeting will find it more convenient to go directly to the third floor of the Club House, where special coat rooms will be provided for the exclusive use of the Society.

The rooms on the third and fourth floors which have been assigned to the Society for the annual meeting are entirely apart from the rest of the Club House used by its members.

Rooms 4 and 5 will be used as the Society headquarters continuously throughout the day and evening.

Each member is requested to register on cards provided for the purpose immediately on his arrival and to secure a badge which will be a means of identification throughout the meeting. They are also requested to register any guest whom they may introduce and to procure for him a special guest badge.

Members are urged to purchase at the time of registration the tickets they desire for the dinner and the smoker, as admission will be strictly by tickets for both members and guests.

The prices for tickets have been fixed as follows:

Dinner tickets	$2.00 each
Smoker tickets	1.00 each
Combination tickets for Dinner and Smoker	2.50 each

It is indispensable that the Committee be informed at as early date as possible how many will attend the several gatherings so that ample and satisfactory arrangements may be made. If a member finds that he can attend only the business meeting, it will help the Committee to know it in advance so that his badge may be prepared for him. The Committee therefore urges each member most earnestly to fill out and mail the postal card already sent him as promptly as possible stating his intentions.

Tickets may be obtained by addressing the Secretary at any time after the receipt of this notice.

H. F. BRYANT,
C. W. SHERMAN,
S. E. TINKHAM,
F. H. FAY,
Committee.

STUDENTS' MEETING, APRIL, 5, 1911.

A special meeting of the Society will be held on Wednesday evening April 5, 1911, at the Boston City Club to which the students in civil engineering at the Institute of Technology, at Harvard University and at Tufts College will be invited to be present as guests of the Society. A special notice will be sent out later giving further information.

MEETING OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

A meeting of the American Society of Mechanical Engineers will be held at 39 Boylston St., on Friday evening, March 17th at

8 o'clock. Mr. William F. Uhl will read a paper entitled, "Speed Regulation in Hydro-Electric Plants." A most cordial invitation is extended to the members of the Boston Society of Civil Engineers to attend this meeting and take part in the discussion.

APPLICATIONS FOR MEMBERSHIP.

[March 8, 1911.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-Laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to examine this list of applicants and to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidate, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as references, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider these applications until the expiration of twenty (20) days.

Allen, Charles Metcalf, Worcester, Mass. (Age 40, b. Walpole. Mass.) B. S. 1894, M. S. Worcester Polytechnic Institute, 1895 to date with Worcester Polytechnic Institute (with privilege of outside engineering practice) as follows: — Assistant in mechanical engineering 1895–1897; instructor in hydraulics and laboratory work 1897–1902; assistant professor 1902–1906; professor of experimental mechanical engineering 1906–1909; professor of hydraulic engineering 1909 to date. During the past fifteen years has had considerable practice in experimental mechanical and hydraulic engineering lines. At present Prof. of Hydraulic Engineering, Worcester Polytechnic Institute. Testing engineer in experimental mechanical and hydraulic lines. Refers to H. K. Barrows, H. P. Eddy, R. A. Hale, H. J. Hughes C. T. Main and A. T. Safford.

Andrews, Hiram Bertrand, Melrose, Mass. (Age 44, b. Stetson, Me.) Graduate, University of Maine 1888. From 1888–1890 with Edward A. Buss, Boston, Mass.; 1890–1904, with Boston Elevated Ry. Co. greater part of the time as assistant engineer; 1904 to date, with Simpson Brothers Corporation, as designing and constructing engineer in reinforced concrete. Refers to H. F. Bryant, L. S. Cowles, W. S. Johnson, C. F. Knowlton, S. E. Tinkham and J. R. Worcester.

Armstrong, Kenneth Potter, Somerville, Mass. (Age 24, b. Somerville, Mass.) Graduate, Mass. Inst. of Technology, degree, Bachelor of Science in Civil Engineering. During July, August and September, 1909, with Charles River Basin Comm., as rodman; from August 24, to Sept. 24, 1910, with Boston Elevated Railway Co., as rodman; from Sept. 28, to Dec. 20, 1910, with Metropolitan Water & Sewerage Board as transitman. At present, not employed. Refers to C. F. Allen, C. B. Breed, H. F. Pierce, B. A. Rich, C. M. Spofford and A. E. Tarbell.

Gibson, Bradford Adams, Leicester, Mass. (Age 40, b. Worcester, Mass.) Graduate, Worcester Polytechnic Inst., with degree of B. S. Civil Engineering Course, 1891. During summer and fall 1891, draftsman, mill construction, Lancaster Mills, Clinton, Mass.; winter 1891–92, transitman with Woods & Rugg, Worcester, Mass.; spring and summer, 1892, office assistant with Wallace C. Johnson, Niagara Falls, N. Y.; 1892–1900, draftsman, Norcross Brothers Co., Worcester, Mass.; 1900, designer and estimator, Vermont Construction Co., St. Albans, N. Y.; 1900 to date, chief draftsman and structural engineer in charge of structural designs, details and estimates with the Norcross Brothers Co., Worcester, Mass. Refers to C. S. Allen, H. P. Eddy, C. E. Hale, E. H. Rockwell, L. A. Taylor and E. A. Tucker.

Hayden, Edwin C., Everett, Mass. (Age 36, b. Pittsfield, Mass.) From 1895–1898, student at Cornell University. 1898–1901 with New England Gas and Coke Co. as chief of party on surveys, foundation work and pipe lines; for a short time in 1901 with City of Everett on surveys; from 1901 to date associated with C. A. Haskin, contractor, plans, estimates and construction of pneumatic tunnels. Associate Member, American Society of Civil Engineers. Refers to Clifford Foss, Christopher Harrison, H. U. Ransom, B. A. Rich and F. I. Winslow.

Hoxie, Arthur Edmund, Laconia, N. H. (Age 36, b. Newburyport, Mass.) Received education from public schools and Mass. Inst. of Technology. From 1897–1902 was recorder, chainman or rodman for short periods; from 1902–1908 with the Bangor & Aroostook R. R., Missouri Pacific Ry, City of Laconia and Union Pacific R. R., as rodman, draftsman, topographer, instrumentman and assistant engineer in charge of construction; from 1908 to date has been in private practice at Laconia, N. H. Refers to F. G. Berry, Moses Burpee, T. E. Penard and C. E. F. Stetson.

Morrill, William Dexter, Lynn, Mass. (Age 26, b. Lynn, Mass.) Graduate from the Scientific Course, Lynn Classical High School, 1903, took post graduate course 1904, took four years special course at Brown University. Worked during the summer of 1905 for I. K. Harris, of Lynn; entered the employ of O. Perry Sarles, C. E. of Providence, June 1908, and remained till Sept. 1909, then returned to Brown University and graduated in Civil Engineering in June, 1910; now in the employ of the Boston Elevated Railway Co., as Assistant Inspector. Refers to H. R. Draper, C. T. Fernald, H. M. Johnson, E. R. Kimball and F. K. Lawrence.

Norcross, Orlando Whitney, Worcester, Mass. (Age 70, b. Clinton, Me.) Builder of engineering construction and other works for thirty-five years. President of Norcross Brothers Co., Worcester, Mass. Refers to C. A. Allen, H. P. Eddy, G. B. Francis, E. H. Rockwell, L. A. Taylor and J. R. Worcester.

Rockwood, Edward Farnum, Newton Centre, Mass. (Age 28, b. Brookline, Mass.) Graduated from Mass. Inst. of Technology in 1904 and spent following year in graduate study at M. I. T. From June 1905 to January 1908, with Eastern Expanded Metal Co., as designing engineer; from January 1908 to April 1910, with Eastern Concrete Construction Co., as designing engineer and from April 1910 to date with New England Concrete Construction Co., as chief engineer. Associate member of the American Society of Civil Engineers. Refers to L. S. Cowles, H. W. Hayward, C. J. Hogue, Granville Johnson, E. S. Larned and J. R. Worcester.

Tobin, James Joseph, Boston, Mass. (Age 24, b. Boston, Mass.) Graduated, Boston Latin School, 1905. From 1905 to 1907 at Lawrence Scientific School of Harvard University. From fall of 1907 to Jan. 1907 with Boston Transit Commission, as rodman and as inspector; from Feb. 1908 to July 1908 with Porto Rican Irrigation Service, as instrumentman: Sept. 1908 to July 1909 at Harvard University; from July 1909 to Sept. 1909 with U. S. War Dept. Engineers at Provincetown, Mass., as instrumentman; from Sept. 1909 to Aug. 1910 returned to Harvard graduating with degree of S. B.; Aug. 1910 to Oct. 1910 with Lackawanna Steel Co, Buffalo, N. Y. as inspector; Oct. 1910 to date with Boston Transit Commission as inspector on Section 2, Cambridge connection. Refers to E. S. Davis, J. B. Flaws, T. R. Hazelum, L. P. Henderson, J. A. Starr and P. B Walker.

von Loesecke, Sidney Stanley, Boston, Mass. (Age 19, b. Lynn, Mass.) Graduated from Mechanics Arts High School, 1908 and 1909. From Sept. to Nov. 1909 with Brookline Town Engineering Dept., as rodman; Nov. 1909 to May 1910 with Boston Transit Commission, as rodman and concrete mixing inspector and from May 1910 to date with Boston Transit Commission on Sections 1 and 2 of the Beacon Hill Tunnel. Refers to C. L. Brown, E. S. Davis, W. W. Davis, G. D. Emerson, J. B. Flaws and James McNulty.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE.

42. Member. Graduate, Harvard College 1906, with special work in civil engineering. Two years' experience as rodman and inspector on railroad terminal work and reinforced concrete masonry. Desires position as inspector or in charge of survey party. Salary $75 per month.

43. Graduate, Inst. of Technology in civil engineering in 1909. Some experience as draftsman. Desires position of transitman, field work in hydraulic line preferred.

44. Graduate, Inst. of Technology in civil engineering in 1898. Railroad experience as draftsman, assistant engineer and resident engineer. Desires position as assistant engineer or draftsman. Salary $100 per month.

45. City Engineer of Everett reports that he has in his employ a young man experienced as a transitman, for whom he would like to secure a position. Is competent to take charge of a party, set grades and run lines. Salary $80 per month.

46. High school graduate desires position. Has had some field and office experience with a civil engineer.

47. Member. Six years experience on municipal street railway and steam railroad work desires position in Boston or vicinity as inspector, assistant to building contractor, topographical or railroad draftsman. Salary $75 to $100 per month, will furnish tools and instruments if required.

48. Member. Technical training at Tufts College and Institute of Technology. Over twenty years' experience in municipal engineering and topographical surveying; has had charge of the laying out and engineering construction of large private estates.

ENGINEERS' DINNER AT BOSTON, JAN. 31, 1911.

The following account of the dinner is taken in part from the March issue of the *Journal* of the American Society of Mechanical Engineers:

An engineers' dinner, attended by more than 400 representatives of the profession as a whole, similar in character to that of a year ago, was given in Boston on the evening of January 31 in the Hotel Somerset. The arrangements for the gathering were in charge of the Boston Section of the American Institute of Electrical Engineers, the Boston Society of Civil Engineers and The American Society of Mechanical Engineers coöperating. John F. Vaughan, Chairman of the Boston Section of the American Institute of Electrical Engineers, presided and called upon Prof. Ira N. Hollis, Mem. Am. Soc. M. E., to give the present status of plans for an engineering building, as formulated by the committee appointed at the dinner of 1910. Professor Hollis reported that as a result of a number of meetings it had seemed best to secure a site in the center of Boston, and that the committee had already passed upon two or three locations. The cost of an adequate building, he said, would be between $30,000 and $50,000.

J. J. Carty, chief engineer of the American Telephone and Telegraph Company, who represented the American Institute of Electrical Engineers in the absence of President Jackson, spoke of the part of the engineer in the revolution in conditions of life which is taking place in America, and of the need of his entrance into public affairs to a greater extent than heretofore.

Mr. Carty was followed by Col. E. D. Meier, President Am. Soc. M.E., who spoke of the debt of America to New England. He said that, as a new nation, we were obliged to borrow from the older nations of Europe, but that after they had given us the science it was the American mechanic and the American engineer who made use of the facts of those sciences and brought them into practical shape for service to men. It was a Yankee, Benjamin Thompson, who demonstrated experimentally the mechanical equivalent of heat at Munich. It was a New Englander, James B. Francis, who invented and built the first internal discharge turbine and realized an economy which has not yet been excelled. The engineers and machine builders of Europe had been improving the steam engine for nearly half a century without making much progress in its economy until a Yankee, George H. Corliss,

showed them the way by his wonderful discovery, making possible the real economy of the steam engine. In the early days of steam navigation, it was Yankee clippers built in our shipyards here which set records the early Atlantic steamers were unable to break. The first industry to expand, the textile, derived its possibilities from the invention of the cotton gin by Whitney; and when steam was needed to help out water power, Corliss and those who followed him stepped into the breach. The production of anything in quantities, the actual manufacture of machinery, was inaugurated in America. Muskets and rifles had been made in Europe for many years, but it was at the Springfield armory that they were first made by the thousand, by making all the parts interchangeable — an American and a Yankee idea. The mechanical genius of the nation was equal to the difficulties of building railroads, which on account of the vast distances, great ranges of mountains, immense streams, were much greater here than in Europe, and while the first railroads were crude, there were today none in the world which can compete with some of those in America. Men like Faraday, Volta, Ohm and Siemens were leaders in the science of electricity; but it took men like Thomson, Edison and Field to develop it into the practical uses of mankind. The first submarine cable was the project of Americans and was laid by them. He voiced in conclusion his hearty approval of such gatherings of the profession as a whole and said that while none of us as individuals could know more than a little, as a body we were possessed of much knowledge.

Mr. Henry F. Bryant, President of the Boston Society of Civil Engineers said in part that the age of the Boston Society of Civil Engineers is something of which we are all proud and we never let an opportunity go by to voice it. To-night one of the directors of our society said as he passed me that he had just been to Winnipeg to represent the society there, and when I asked him what message he carried, he said,— "I told them that we were the oldest society in the country." Gentlemen, that is not all the Boston Society of Civil Engineers has to be proud of. I am very glad that we can say not only that we are the oldest, but that we are the broadest engineering society that I know of. Our society contains engineers for all walks of life and it is seeking to secure new members who are engineers in all walks of life. It is very anxious that nobody shall get by, and I have a very strong personal feeling in this matter and hope every one will appreciate our inclusiveness.

The engineers of 1848, the year that our society was organized, were men who did almost everything perhaps in the line of engineering. There was no electrical engineering, so far as I know. I naturally do not remember much about that time. There was very little mechanical engineering as such, and we naturally were the only society,— a pretty small beginning.

But I think to-day we have gone too far in the matter of differentiation, especially in societies. I think there are a great many people who regret that there are four national societies instead of one, as in the early days. I think, furthermore, that there are to-day signs of these national societies,— (perhaps not as societies but as individuals) getting together in local bodies. Possibly some of you know what St. Louis is attempting, or certainly is talking about, not only having local sections of the electrical engineers, local sections of the mechanical engineers, etc., together with their present St. Louis club,— but they are attempting to get together as a local body of engineers, with common headquarters regardless of their national affiliations.

That, I think, is just what we are trying to do here, and I believe it is one of the best things about our progress to-day that we realize our needs as engineers. I think this move for a clubhouse or headquarters,— call it what you will,— is a healthy one. I do not think the special committee appreciates the real demand for this. I believe that whatever plan is put up will be supported with tremendous enthusiasm. I hope the committee will have the courage to put up something good, because I am sure from what I hear that it will be a success. I have been made something of a watch-dog by my society and it has been expected that my duty was partly to keep after that commiitee and prod them, and I have prodded them a little. The committee has worked hard, but I do not think that the members have had the courage that some of the society men and some outsiders have had.

I cannot speak for anyone except myself, and I do not know that I have seriously suggested this to anyone before, but I would like to see the Boston Society of Civil Engineers drop the word "Civil" and be what it really is in a measure now,— simply a local society of engineers, including all branches of the profession. I am perfectly ready to take my share in whatever steps need to be taken to bring that about. I want to say again that this is only a personal opinion and the matter has not been discussed, so far as I know, by any society, body or committee.

The most important thing you have to consider to-night is this engineering club; and I hope, gentlemen, that you will do everything you can to aid the committee when it makes its report on headquarters. Whether you approve of all the details or whether you do not, I hope you will sink all minor differences and heartily support whatever scheme the committee brings forward.

Dr. Richard C. Maclaurin, President of the Massachusetts Institute of Technology said in part: — "If I may talk about the Institute a little more I would like to say that I hope the engineers will back us in the efforts that Prof. Thomson and I and others are now making to secure some further support from the Commonwealth. It has been said by one of the speakers who has preceded me that engineers do not carry that weight in society that they ought to carry. I do not know whether or not that charge is true, you sometimes hear it suggested that engineers are too individualistic, — that they have not enough of the professional spirit, — so that as a profession they do not make that impression on society that their individual talents would lead one to expect. I do not know, either, that this is true, and I hope for selfish reasons that it is not. I want to feel, — I would like to feel, — that there was a great body of engineers behind the scheme that the Institute of Technology is now trying to put through. I would like to feel that the engineers in this community realize, and show the community that they realize, that it is of the utmost importance to the Commonwealth that there should be in the community an institution able to train the men competently for the great profession which you represent. You must know better than most men that more and more in the world to-day the great practical problems that the State has to face are engineering problems; and you must know that more and more is the engineering profession becoming the learned profession distinctively. It was said, I believe, to-night that this is one of the most learned professions that there is; and if it is a learned profession it can only be approached by adequate training, and that adequate training demands that the Institute of Technology and other similar institutions in the community should be able to keep their positions of leadership among the great engineering schools of the world. The guest of the evening is associated honorably with this institution, otherwise I should not have appeared to introduce this subject on this occasion."

Prof. Elihu Thomson, of Lynn, Mass., the principal guest of the evening was then introduced.

Professor Thomson said that while electrical engineering is the youngest of the engineering branches, we are finding that the universe is really and fundamentally electrical — that matter itself is composed of electrical corpuscles, and that the forces that act on matter, inertia, momentum, gravitation, etc., are in their very essence electrical; so that we are occupying the universe theoretically if not practically. In the progress of engineering, we have seen in the past ten, fifteen or twenty years very great changes and advances. We are living indeed in what we might call the scientific age. Formerly men had to do their work by empirical methods and were obliged to do a great deal of guessing. They had to work by a sort of intuition, particularly in the early days of electrical engineering. Even now we have not by any means gotten over it, but need more and more information. The pure science of this day is the applied science of the day far in advance. "When Davy put the batteries together and the two little carbon points, one against the other, and then drew them apart, he formed what he called an arch of light. It was the arc of to-day. Davy in writing his description of it said: 'It is a truly gorgeous experiment.' That was all. But just think what the arc means in electrical engineering."

Emphasizing the need of greater support of our technical schools, he said: "I look forward to the time when the technical man, the well-informed scientific technically trained man, will be a factor of far greater consequence in the community than he is to-day. I look forward to the time when no business man will enter upon an enterprise without first having the opinion of one or more well-informed technical men. How much money is thrown away in all sorts of worthless ventures, when, if the business man always had it in mind to say, 'There must be somebody who knows about this a great deal better than I do and I will consult him,' how much wastage would be saved. How many enterprises which are merely on paper would be downed from the start. How many ways of gambling, so to speak, would be stopped in their inception.

If we look into the future far enough we will see that what has come about in reference to pure food will come about concerning these other things. It will be made a misdemeanor and something that cannot legally be done, to foist upon the public schemes which have not the proper endorsement of technical men; and the technical man will then come into his own.

I think a gathering of this kind, a union of engineers, is of great value in bringing out the views of engineers themselves; for let a body of engineers, one dealing with one sort of problems and another with another sort, talk together, and the result is undoubtedly very highly educational. A man goes away from a meeting of that sort with a broader and more comprehensive view of the work that is being done in the world; and a broad man is, of course, a valuable man because he is always able to tell in what direction information should be looked for and who are the best men to furnish it."

Professor Arthur E. Kennelly, member Am. Institute of Electrical Engineers, acted as toastmaster and added much to the occasion by his apt introductions. The evening concluded with a rising vote of thanks to the speakers.

MINUTES OF MEETINGS.

FEBRUARY MEETING OF THE SOCIETY.

Boston, February 15, 1911.

A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple at 7.45 o'clock P. M., Vice-President Charles T. Main in the chair, 65 members and visitors present.

The record of the last meeting was read and approved.

The Secretary reported for the Board of Government that the following candidates had been elected to membership in the grades named: —

Members: — Messrs. James A. McMurry, John E. Palmer and John J. Oakes.

Junior: — Mr. Maurice B. Greenough.

The Secretary also reported for the Board that it had been voted to recommend to the Society that a sum not exceeding $500 be transferred from the Permanent Fund to the Current Fund to meet the deficit in the latter fund at the close of the current year. Mr. Winslow moved that a sum not exceeding $500 be appropriated from the Permanent Fund, as recommended by the Board of Government. After a discussion by Mr. Howe, the Secretary and others, a vote was taken and the motion declared lost, 22 in favor and 15 against, not the necessary two-thirds.

The chair announced the deaths of the following members of the Society: —

Burton I. Drisko . . .	died Jan. 8, 1911.
Joseph R. Carr . . .	" Jan. 27, 1911.
Louis E. Hawes . . .	" Jan. 29, 1911.
Leonard P. Kinnicutt . .	" Feb. 6, 1911.

By vote the President was requested to appoint committees to prepare memoirs of the deceased members named. The committees appointed are as follows: —

On memoir of Mr. Drisko, Mr. L. L. Street; on memoir of Mr. Carr, Mr. W. E. McClintock; on memoir of Prof. Kinnicutt, Messrs. H. P. Eddy and C.-E. A. Winslow; and on memoir of Mr. Hawes, Messrs. George M. Warren and Erastus Worthington.

On motion of Mr. Higgins the thanks of the Society were voted to Mr. Orlando W. Norcross for courtesies extended to its members on the occasion of the visit to the foundation work now going on at the Boston Custom House this afternoon.

Mr. Walter McCulloh, Consulting Engineer, New York State Water Supply, who had accepted an invitation to address the Society at this meeting and had come to Boston for the purpose, was forced, at the last moment to remain at his hotel by advice of his physician. Prof. H. K. Barrows kindly consented to read Mr. McCulloh's paper which was entitled " Water Resources of the State of New York " and to describe the lantern slides which accompanied the paper.

The Society was very fortunate in having Prof. Barrows as a substitute for the speaker of the evening because of his familiarity with the territory covered by the paper.

The paper was discussed by Vice-President Main, Prof. Barrows and others.

The thanks of the Society were voted, unanimously, to Mr. McCulloh for his very interesting paper and the Secretary was directed to express to him the sympathy of the Society and its sincere hope for his speedy recovery.

S. E. Tinkham, *Secretary.*

MARCH MEETING OF THE SANITARY SECTION.

The annual meeting of the Sanitary Section of the Boston Society of Civil Engineers was held Wednesday evening March 1, 1911 at the Boston City Club.

Preceding the annual meeting, dinner was served at 6 o'clock at which 24 members and guests were present.

The business meeting was opened at 7.20 o'clock with Chairman R. S. Weston presiding. As Mr. H. K. Barrows, the Clerk, was obliged to be out of the city on business, the chair appointed Frank A. Marston as Clerk *pro-tem.*

Acting on a motion by Hiram A. Miller it was voted to authorize the chair to appoint a Nominating Committee consisting of three members to report nominations for officers and members of the Executive Committee for the ensuing year. The chair appointed Messrs. Hiram A. Miller, William S. Johnson and Charles W. Sherman as that committee.

A report of the Committee on Rainfall and Run-off from Sewered Areas was read by Mr. Wm. S. Johnson. On motion of Mr. Chas. W. Sherman it was voted to accept the report of the committee, and place it on file, to continue the committee for the ensuing year, and to authorize them to compile such run-off records as are available for publication in the Journal.

Owing to the fact that no member of the Committee on Collection and Tabulation of Sewerage Statistics was present, it was moved by Mr. Frank L. Fuller and voted, that the committee be continued and asked to report at a later date.

A report of the Committee on Uniform Specifications for Sewer Pipe was read by Mr. Leonard Metcalf, Chairman. On motion of Mr. Wm. S. Johnson it was voted that the committee be continued, and the report accepted and placed on file.

The report of the Executive Committee for the past year was read by the Chairman. Mr. Leonard Metcalf moved that the report be accepted and placed on file, and it was so voted.

The report of the Committee on Revision of the By-Laws was read by Mr. Edward Wright, Jr. The recommendations of this committee, having been printed and sent to each member of the Section together with the notice of the annual meeting, and having been approved by the Executive Committee, were then presented to the meeting for action. Mr. Frank L. Fuller moved that the report be accepted and placed on file, and that the amendments be adopted. The motion was carried unanimously. Accordingly it was declared that the amendments would become a part of the By-Laws after approval by the Board of Government of the Society.

Notice was given by the chair that an application for membership in the Section had been received from Mr. Frank S. Bailey, a member of the Society, and that accordingly he would be so enrolled.

The Chairman expressed the deep sorrow felt by members of the Section because of the death of Dr. Leonard P. Kinnicutt, head of the department of chemistry at the Worcester Polytechnic Institute, which occurred on Feb. 6, 1911. With his death, the Section lost one of its most active and honored members. On motion of Mr. Frank L. Fuller it was voted to instruct the chair to appoint a committee of three to prepare a suitable memorial. The following were appointed as members of that committee: Messrs. Leonard Metcalf, Wm. S. Johnson and Frank A. Marston.

The subject for the evening was "The interference of wool manufacturing wastes with the operation of intermittent sand filters as illustrated by the experience at Hudson, Mass."

The discussion was opened by Mr. F. A. Barbour with a description of the causes which led to the clogging of the Hudson sand filters by grease from a wool scouring plant, and the resultant pollution of the stream. In this connection, several interesting features of the litigation were touched upon, and questions concerning the relations of local Boards of Health and manufacturers discussed. Mr. Barbonr further described the steps taken by the town to remedy the trouble with the filters, and the construction of additional beds to relieve those that were clogged.

The Chairman, Mr. Robert Spurr Weston, continued the discussion with a brief resumé of the problems connected with the disposal of manufacturing wastes, with special emphasis on the methods of scouring wool and the wastes resulting therefrom. A description of the plant installed at Hudson for the Hudson Worsted Co. to deal with these wastes, and for the recovery of wool fats, followed. A number of well chosen slides were shown which added to the interest of the meeting.

The general discussion was participated in by Messrs. Leonard Metcalf and Wm. S. Johnson, who from their experiences at other places were able to bring out further points of value.

The discussion of the papers having closed, the report of the Nominating Committee was read by Mr. Chas. W. Sherman and the following nominations made: —

Chairman	George A. Carpenter.
Vice-Chairman	Harold K. Barrows.
Clerk	Frank A. Marston.

Additional members of the Executive Committee.

Edward Wright, Jr.

Frank B. Sanborn.

Earle B. Phelps.

Mr. Sherman moved that the Chairman of the Nominating Committee, Mr. Hiram A. Miller, be instructed to cast one ballot for the officers and members of the Executive Committee as nominated. The motion was carried by a unanimous vote, the ballot was cast as directed, and the candidates were declared elected.

There were 33 present during the evening, including members and guests.

The meeting adjourned shortly after 9 o'clock.

FRANK A. MARSTON,
Clerk pro tem.

LIST OF MEMBERS.

ADDITIONS.

ROYALL D. BRADBURY . . Technology Chambers, Boston, Mass.
MAURICE B. GREENOUGH, Commons Club House, Tufts College, Mass.
FRED W. LANG . . . . . 55 Perley St., Concord, N. H.
JAMES A. McMURRY . . . , 26 Gaylord St., Dorchester, Mass.
JOHN J. OAKES . . . . . Andover, N. Y.
JOHN E. PALMER . . . 1012 Old South Building, Boston, Mass.

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W. T. BARNES . . . . 57 Grafton St., Newton Centre, Mass.
I. A. F. CHISHOLM . . . . . Quincy, Mass.
F. C. DASHPER . Elm Arch Inn, South Sixth St., New Bedford, Mass.
H. G. HARRISON . . . . University Club, Spokane, Wash.
LANGDON PEARSE, Sewage Pumping Station, 39th St. and the Lake Front, Chicago, Ill.
C. H. PIERCE . . . . . U. S. Geol. Survey, Honolulu, T. H.
C. W. RUTH . Care of Stone & Webster, 147 Milk St., Boston, Mass.
C. E. WELLS . . . . . 215 Kimball Ave,, Yonkers, N. Y.

LIBRARY NOTES.

BOOK REVIEW

The Collection and Disposal of Municipal Waste. By Wm. F. Morse, Consulting Engineer, New York. 462 pp. with 72 tables and 92 illustrations. $5.00. Published by Municipal Journal and Engineer, New York.

[Donated by the author.]

No one in America is better qualified than the author of this volume to treat this subject in a comprehensive manner, both as to the past history of the attempts at garbage reduction, and also as to the reason for previous successes and failures, mainly failures in this country.

The gradual development and evolution of the science of economical garbage disposal up to the present time is treated in a clear and authoritative manner. No one professing to be a sanitary expert can afford to be without this book near at hand. The chapter on English destructor plants is extremely well written, although the account of the success of foreign plants must be taken by the American engineer with considerable allowance for the difference in conditions abroad and here.

Altogether this book of Col. Morse's is a distinct addition to the literature on this subject, and we commend it very highly.

X. HENRY GOODNOUGH.

Recent Additions to the Library.

U. S. Government Reports.

Statistics of Cities of population of over 25,000 in 1902 and 1903.

Statistics of Cities of population of 8000 to 25000 in 1903.

State Reports.

Michigan, Board of Health, Annual Report for 1909.

City and Town Reports.

Baltimore, Md., Report on Water Supply, Freeman and Stearns.

Boston, Mass., Annual Report of Water Commission for 1904, 1905, 1906 and 1909.

Detroit, Mich., Annual Report of Bd. of Water Commission for 1910.

Providence, R.I., Quarterly Report of Dept. of Public Works, Sept. 1910.

Reading, Mass., Annual Report of Water Commission for 1910.

Miscellaneous.

Producer gas power plants in Europe. R. H. Fernald.

Railroads and the people. E. P. Ripley.

Financial condition of N.Y., N.H. & H., and B. & M. R. Rds.

1907 Louis Brandeis.

Basis of quality in paper. A. D. Little.

National Board of Fire Underwriters, Reports on : — Colorado Springs, Col.; Fort Wayne, Ind.; Fresno, Cal.; Lexington, Ky.; Lockport, N.Y.; McKeesport, Pa.; Missoula, Mont.; Portland, Ore.; Sacramento, Cal.; South Bend, Ind.; Stockton, Col.; Woonsocket, R.I.

Kent's Engineers Pocket-Book (new edition).

Same's Mechanical Engineering Pocket-Book.

Mathematics for the practical man. Geo. Howe.

Motion Study. Frank B. Gilbreth.

The following were the donation of Mr. Clemens Herschel:

Canal Record, first three volumes.

New York Sewerage Commission Report, 1910.

Russian Road to China. By Lindon Bates, Jr.

Zeitschrift F. Bauwesen, 1909–1910.

Gesamte Wasserwirtschaft, 1910.

Die Weisse Kohle, 1910.

La Houille Blanche, 1910.

Beiträge, etc. Verein Deutscher Ingenieur, 1909–1910.

Buch Berühmter Ingenieure, Hernig.

L'Art de Batir, Les Egyptiens, A. Choisy.

" " " Les Byzantius, A. Choisy.

" " " Les Romains, A. Choisy.

L'Architecture Grecque.

Histoire L'Architecture, two volumes.

Le Sahara.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK.

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water St., Boston, before the first of each month.)

Commonwealth of Massachusetts. — METROPOLITAN WATER AND SEWERAGE. — *Water Works.* — Satisfactory progress is being made on the new high-service pumping plant, with a capacity of 40 million gallons per day, which is being installed in the Chestnut Hill Low-service Pumping Station, and it will probably be completed, ready to operate, aboutApril 1, 1911.

Boston Transit Commission. — The shield work in Section 1 of the Beacon Hill Tunnel is finished, and the interior of the shield has been cut out. The principal work remaining to be done is cleaning out the tunnel, removing temporary platforms and closing up the shaft in Phillips St.

In Section 2 the bell mouth approach to the station under the Common is nearly completed. The earth core is being excavated, and the construction of the invert will begin immediately. The construction of the double-arch-roof portion of the station is advancing rapidly. Work is also progressing under the Park-street station of the Tremont-street Subway, where the old structure requires supporting while the new construction is going in. About one half of the concrete invert and floor of the old structure has been removed and replaced by heavy steel beams and concrete, forming the roof of the new structure.

Patrick McGovern is the contractor for Section 1 and Coleman Brothers are the contractors for Section 2.

Boston. — U. S. Custom House. The Norcross Bros. Co. is sinking east and west caissons. Depth of west caisson 80 feet and of east caisson 66 feet. A hospital lock has been installed and is now in use. At the present time they are using 23 lbs. air pressure on both caissons.

New Haven. — The Aberthaw Construction Co. is building an Ammunition Storage Building for the Winchester Repeating Arms Co. The building throughout will be of reinforced concrete. The floor loads are exceptionally heavy from the nature of the commodity stored. The design is by L. W. Robinson of New Haven.

Quincy, Mass. — The Fore River Shipbuilding Co. has the following new work in progress: —

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U. S. Torpedo Boat Destroyer Henley, 750 tons displacement.

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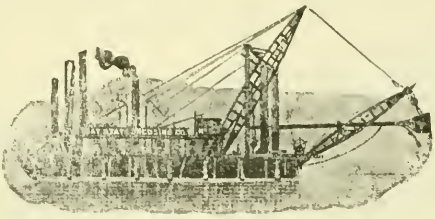

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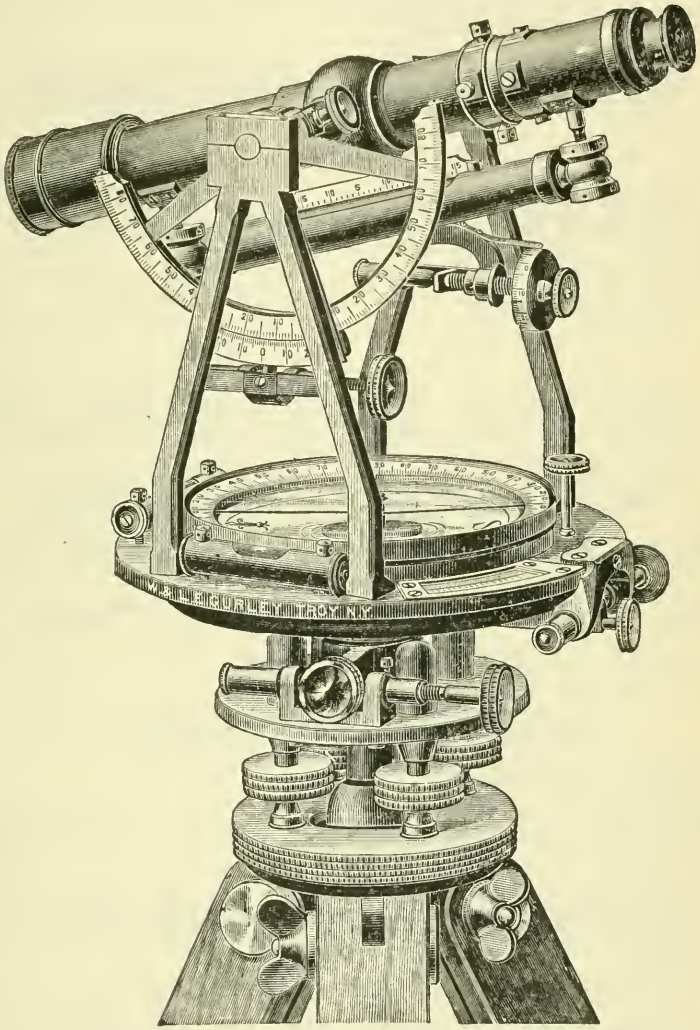

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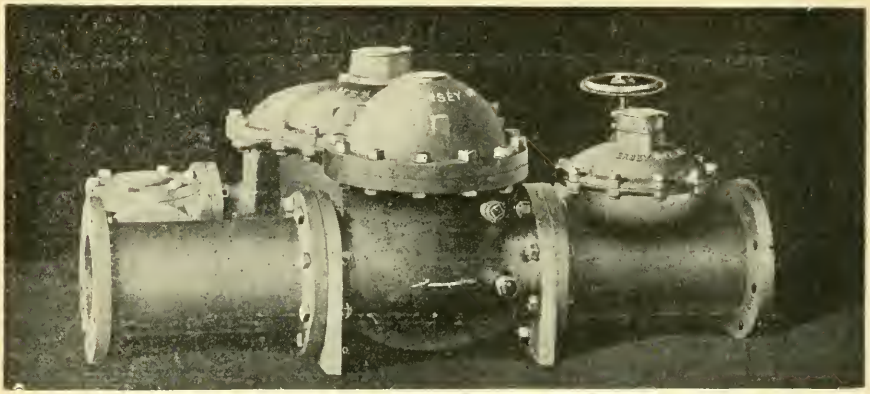

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ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. APRIL, 1911 No. 51

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

April 19, 1911. Regular meeting in Chipman Hall at 7.30 P.M. Talk by Edwin J. Beugler on "Some Byways in Turkey."

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, April 19, 1911, at 7.30 P.M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. Edwin J. Beugler of New York, with an illustrated talk entitled "Some Byways in Turkey."

It is believed that the subject and lantern slides shown will be interesting to the ladies and a most cordial invitation is extended to them to be present.

APPLICATIONS FOR MEMBERSHIP.

[April 12, 1911.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-Laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to examine this list of applicants and to communicate promptly any facts in relation to the personal character or professional reputation and experi-

ence of the candidate, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as references, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider these applications until the expiration of twenty (20) days.

Hartshorne, William Davis, Methuen, Mass. (Age 58, b. Brighton, Md.) Graduate, Lehigh University, class of '74, degree of C. E. From 1875–1876, with Lehigh Valley R. R. Engineer Corps; 1876–1878, teacher of mathematics and physics at Howland School, Union Springs, N. Y.; 1879, in charge of Government party engineers gauging Mississippi River; 1879–1882, chemist with Arlington Mills; 1882–1900, Supt. Worsted Dept., Arlington Mills; 1900 to date, Resident Agent, Arlington Mills. Refers to G. H. Barrus, F. W. Dean, R. A. Hale, W. B. Hammond, C. T. Main and A. D. Marble.

Holland, Neal J., Boston, Mass. (Age 37, b. Boston, Mass.) Employed by City of Boston for past fifteen years in Street Laying Out Dept.; for past nine years, assistant engineer in charge of triangulation. Refers to A. N. Colman, J. F. Connell, H. C. Mildram, F. L. Miner, W. J. C. Semple and F. O. Whitney,

Keyes, John Maynard, Concord, Mass. (Age 48, b. Lowell, Mass.) Special Student at Massachusetts Institute of Technology from 1878–1880. From 1880–1884, in repair shop of Boston & Lowell R. R.; 1884–1885, in laboratory of American Electric Co., Boston; from 1893 to present time, Chairman of the Concord Board of Health; 1901 to date, Chairman of the Road Commission, Concord, Mass., and electrical contractor. Refers to W. M. Bailey, W. D. Hubbard, Leonard Metcalf, Harold Parker, L. C. Robinson, William Wheeler and J. R. Worcester.

Leary, Charles Arthur, Waltham, Mass. (Age 31, b. Waltham, Mass.) Attended Massachusetts Institute of Technology from 1896–1899. In 1900, 6 months with Bertram Brewer, City Engineer, Waltham, Mass.; 1901, 1 year with Pierce and Barnes, Boston, Mass.; 1901–1906, with H. J. Hinterleitner, Spangler, Pa., as first assistant; 1906, with G. M. Bryne Co., Boston, Mass., as assistant superintendent; 1907, with J. G. White Co., Brattleboro, Vt., as assistant engineer on Water Power Development; 1908, with G. M. Bryne Co., as superintendent and engineer on rock tunnel; 1909, 6 months with Pierce and Barnes, Boston, as resident engineer on Johnstown and Gallitzin Ry., Johnstown, Pa.; 1909–1910 with Boston Elevated Railway Co., as assistant engineer on surface lines; 1910, 6 months with Bangor & Aroostook Railway as assistant locating engineer on Allagash Survey. At present, superintendent and engineer with G. M. Bryne Co., Boston, Mass. Refers to Bertram Brewer, C. R. Gow, James F. Monaghan and H. F. Pierce.

McGrath, George Bangs, Boston, Mass. (Age 34, b. Chicago, Ill.) For past eight years has been engaged in the study of all types of street pavements and the production of paving materials and the construction of street pavements. When Ass't Secretary of the National Paving Brick Mfgrs. Ass'n., his business was to promote the proper construction of brick pavements. At present, New England representative of U. S. Wood Preserving Co. Refers to G. M. Clukas, C. F. Knowlton, E. S. Larned, C. E. Savory and F. A. Snow.

Rich, Malcolm, Gloucester, Mass. (Age 33, b. Gloucester, Mass.) Received education in public schools of Gloucester, Mass. From 1897–1899 with M. M. Cannon, C. E., Gloucester, Mass., engaged in the work of general development on and about Cape Ann: 1899 and part of 1900, with the Library Bureau, as draftsman; 1900–1903, with Fore River Co., Quincy, Mass., as assistant to the engineer. From 1903 to date in business for himself, at Gloucester, Mass., working principally on development of seashore estates, landscape work and construction identified with the same. Refers to R. C. Allen, C. A. Fritz, C. B. Humphrey and E. P. Sellew.

Taylor, Charles M., East Weymouth, Mass. (Age 41, b. Chelsea, Mass.) Received degree of S. B. in mechanical engineering, Massachusetts Institute of Technology, 1893. In the fall of 1893 entered the employ of the Atlantic Works, East Boston, Mass., continuing with them about two and one-half years, as draftsman; during year of 1895, with City of Newton as inspector on sewer construction; during year of 1896, with Edison Electric Illuminating Co., Boston, on underground department partly as draftsman and partly on out-door work; 1896–1899, with General Electric Co., Lynn, Mass., as draftsman on meters, instruments and arc lamps; 1899, with the Fore River Ship Building Co., then at East Braintree, Mass., working for a time on ship drafting, and when the plant at Quincy Point was erected, worked on the design and erection of many of its parts; from 1902 to date, at Navy Yard, Boston, Mass., as draftsman in construction and repair department. Refers to C. H. Bartlett, Ephraim Harrington, H. A. Nash and B. A. Rich.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE.

49. High School and three years individual study. One and

one half years' experience on plain surveying and one year "running a transit" in construction office, B. & A. R. R. Desires position as transitman. Salary, $65 per month.

50. No experience. Desires position as rodman. Salary, $4 per week.

51. Junior. Graduate Massachusetts Institute of Technology, Sanitary Engineering Course. Now employed by the Sewage Disposal Commission, City of Fitchburg. Has had experience on sewer design and preliminary investigation at Beverly, Mass., also as transitman and draftsman. Desires position as resident engineer.

52. Has had two years' experience on railroad location and construction, as resident engineer, and five years' experience with United States Government on installation and operation of a rock-crushing plant delivering 3500 yards in an eight hour day, and has been Superintendent of same for over a year and a half. Desires position with large contractor on railroad construction work or with large rock crushing company. Salary, $200 per month.

53. Student at Mechanic Arts High School desires summer position as rodman.

54. Has had 15 years' experience as inspector of general construction work especially in the line of masonry and concrete work. Desires position as inspector of general construction work. Salary, $30 per week.

LIST OF MEMBERS.

ADDITIONS.

Benjamin F. Bates	64 City Hall, Boston, Mass.
Carl C. Harris	Supt. Rodney Hunt Machine Co., Orange, Mass.
Alfred E. Haskell	156 Strathmore Rd., Brighton, Mass.
Samuel C. Schwartz	139 Morrison Ave., West Somerville, Mass.

CHANGE OF ADDRESS.

George Bowers	359 Westford St., Lowell, Mass.
H. B. Burley	Chestnut Hill, Mass.
H. L. Carter	37 Beechcroft Rd., Newton, Mass.
W. L. Church	88 Pearl St., Boston, Mass.
W. A. Clapp	In care of Constr. Quartermaster, Ft. McDowell, Cal.
W. C. Cuntz	90 West St., New York City
R. W. Emerson	City Hall, Pittsfield, Mass.
H. S. Ferguson	200 Fifth Ave., New York City
C. R. Gow	166 Devonshire St., Boston, Mass.

N. C. Grover	1330 F. St., N. W., Washington, D. C.
Richard Hutchinson	35 Federal St., Boston, Mass.
A. W. King	33 Fife St., Forest Hills, Elmhurst, L. I.
H. A. Miller	8 Beacon St., Boston, Mass.
John F. Monaghan	2 Oak Sq. Waltham, Mass.
W. F. Morse	90 West St., New York City
J. J. Oakes	In care of Porto Rico Irrigation Service, Goyama, Porto Rico.
W. C. Otis	217 Massachusetts Ave., East Lexington, Mass.
W. V. Polleys	Box 345, Norristown, Penna.
C. W. Robinson	59 Magazine St. Cambridge, Mass.
F. F. Skinner	10 Bridge St., New York City.
C. W. Smith	Altman, N. Y.
W. E. Spear	250 West 54th St., New York City.
C. S. Tinkham	10 Bank Bldg., Middleboro, Mass.

RESIGNATIONS.

(In effect March 15, 1911.)

Carl P. Abbott	Oliver W. Hartwell
Walter H. Allen	Frederick B. Knapp
Henry B. Alvord	Fred. S. Pearson
George W. Blodgett	Bernard S. Rose
William T. Blunt	Walter Shepard
Edward G. Chamberlain	Alden S. Tileston
William G. S. Chamberlain	Charles-Edward A. Winslow
Harold P. Farrington	John B. Wright
Joseph P. Gray	Francis E. Adams

LIBRARY NOTES.

Recent Additions to the Library.

State Reports.

Mass. Annual report of Board of Health, 1909.

City and Town Reports.

Andover, Mass., Annual report of Board of Public Works for 1910.

Brookline, Mass., Annual report of Water Board for 1910.

Fitchburg, Mass., Annual report of City Engineers for 1910.

Leominster, Mass., Annual report of Water Board for 1910.

New Bedford, Mass., Annual report of Water Board for 1910.

North Adams, Mass., Annual report for 1910.

Plainfield, N. J., Annual report for 1910.

Plymouth, Mass., Annual report of Water Dept. for 1910.

Watertown, Mass., Annual report of Water Dept. for 1910.

Wilmington, Del., Annual report of Water Com's for 1910.

Miscellaneous.

Gas, Gasoline and Oil Engines. G. D. Hiscox.
Experimental Engineering. Rolla C. Carpenter.
Electrical Engineering. E. Rosenburg.
Essex County Engineers Annual report for 1910.
Current Railway Problems. S. O. Dunn.
Sanitary Examination of Well Waters. Iowa State College.
Incandescent Lamp Tests. " " "
Small Sewage Plants. " " "
Concrete Pipe and Cement Blocks. " " "
Power Generation in Iowa. " " "
Steam Pipe Coverings. " " "
Holding Power of Nails " " "
Miracle Prize Papers. " " "

FREDERIC I. WINSLOW, *Librarian.*

MINUTES OF MEETINGS.

Boston, March 10, 1911. A special meeting of the Boston Society of Civil Engineers was held at the Hotel Vendome this evening The meeting was especially for the purpose of extending a cordial welcome to the ladies and to enable the members who have recently joined the Society to become better acquainted with the older members.

At 8 o'clock President Bryant called the meeting to order and introduced Past President Desmond FitzGerald, who gave an exceedingly interesting talk on "Nature Studies in Many Lands," which was profusely illustrated by colored lantern slides.

At the conclusion of the talk, a social hour was enjoyed and a light collation served.

The attendance of members and ladies numbered one hundred and four.

S. E. Tinkham, *Secretary.*

Boston, March 15, 1911. — The annual meeting of the Boston Society of Civil Engineers was held at the Boston City Club, 9 Beacon Street, at 12.30 o'clock P.M., President Henry F. Bryant in the chair.

The reading of the record of the last meeting was dispensed with and it was approved as printed in the March *Bulletin*.

The Secretary reported, for the Board of Government, that the following candidates had been elected to membership in the grades named:

Members — Messrs. Benjamin F. Bates, Carl C. Harris and Alfred E. Haskell.

Junior — Mr. Samuel Schwartz.

The Secretary read his annual report and by vote it was accepted and placed on file.

The Treasurer read his annual report and by vote it was accepted and ordered printed in the *Bulletin*.

Mr. Hale, for the Committee on Excursions, read its annual report, and by vote it was accepted and ordered printed in the *Bulletin*.

The Librarian read the annual report of the Committee on the Library and by vote it was accepted and ordered printed in the *Bulletin*.

The Secretary read the annual report of the Board of Government and by vote it was accepted and ordered printed in the *Bulletin*.

Mr. Cowles, for the Society members of the Joint Committee on Clubhouse, made a verbal report, and Professor Hollis, chairman of the Joint Committee, reported progress, saying in part as follows:

The Committee appointed one year ago to consider the suggestions of Mr. Francis that a building be obtained or erected for bringing together under one roof all of the Engineering Societies in Boston has met at intervals since its formation. The committee has consisted of men representing the Boston Society of Civil Engineers, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, the American Institute of Architects, the New England Section of the Illuminating Engineering Society, the New England Section of the National Electric Light Association, the New England Association of Gas Engineers, New England Water Works Association, the Northeastern Section of the American Chemical Society, the New England Section of the Society of Chemical Industry, the Telephone Society of New England. Subsequently, representatives from the New England Street Railway Club, the New England Railroad Club, the National Association of Cotton Manufacturers and the Massachusetts Highway Association were present. There have been about twenty on the committee, three of whom have been representatives of the Boston Society of Civil Engineers.

The discussion and investigation during the year have related principally to the best locality for the engineering building. A number of locations have been examined with reference to availabllity, convenience and cost. It has, in general, been found that where the cost of location and proposed building were high, the returns in rentals promised to be proportionately high; and that where the cost of the location and building were low, the returns were likewise low. Hence, so far as the actual financing of an engineering building has been considered, it has made little difference about the location.

A circular was sent out to all engineers and others, describing the plans and requesting the names of men who approved the formation of an engineers' club to have a home in the proposed building. From four thousand circulars sent out, between five hundred and six hundred replies were received expressing approval and a wish to join an engineers' club.

The plans, as a whole, contemplated a home for the engineering profession and for other professions of applied science that have some interest in an alliance with engineering. There were to be auditoriums for the meetings of societies, a technical library, rooms for an engineers' club, and space on the ground floor for commercial purposes, so that some return might be received in the nature of rents. After a year's discussion and examination of the subject, the committee has finally agreed upon a definite locality facing the Public Gardens, and it only remains to finance the project. It will be necessary, in order to do this, to appoint a Board of Trustees consisting of representative men not exceeding five in number, to take the responsibility for carrying the undertaking through and to be able to speak for its soundness.

It is also proposed to have a smaller working committee under the general committee appointed last year, for the purpose of developing plans and devising methods for getting the money necessary for the construction or purchase of buildings. The location facing the Public Gardens, which seems to answer all purposes, would involve the making over of a building already constructed into a club house, and the construction of one additional building. The cost would be, including the real estate, about $700,000.

The matter will be placed in the hands of an agent to work out the financial statement, and it is already in the hands of an architect who is working on a definite plan.

It seems to the committee that enough pioneer work has been done in regard to location, and that the engineers ought to proceed with all the vigor and enthusiasm that can be found in the societies to raise the money for this project. With the sum stated above, the interest and taxes would be in the neighborhood of $40,000 to $45,000 a year. Enough rentals can probably be obtained in return to cut the actual outlay down to something between $20,000 and $25,000 a year, so that a club of engineers and others would have to provide this sum in addition to the running expenses of the club.

With 1,000 active members and an equal number of non-resident members, a sufficient return per year can easily be provided, and it only remains for the committee having the matter in charge to work out a definite statement in writing, together with the drawings, and then to place the entire project before the engineering profession here.

One of the methods of financing the undertaking would be a mortgage

and stock taken by friends. It is not intended here to go into details, but to suggest to the Boston Society of Civil Engineers the method by which we can all obtain a home in Boston, and to ask the help and coöperation of this Society in carrying it out. The Boston Society is more interested than any other scientific society in Boston, as they have canvassed the question of a building for many years and they ought now to be the leaders in bringing it to a successful outcome. A definite report will be submitted as early as possible, showing a fairly accurate estimate of the cost.

It has not been finally decided how the trustees should be appointed, but it will be difficult to think of a body of five trustees without having the local Society of Civil Engineers fully represented.

Both reports were accepted and placed on file.

The Secretary read a cablegram conveying the greetings of the following members of the Society, who were on their way to Panama: C. T. Main, J. W. Rollins, G. A. Carpenter, F. W. Dean, Dexter Brackett, H. P. Eddy, S. K. Clapp, C. R. Main, W. O. Wellington and T. T. H. Harwood.

The tellers of election, appointed by the President, Messrs. H. A. Varney and David Sutton, submitted their report giving the result of the letter ballot. In accordance with the report, the President announced that the following officers had been elected:

President — Charles T. Main.

Vice-President (for two years) — Frederic H. Fay.

Secretary — S. Everett Tinkham.

Treasurer — Charles W. Sherman.

Directors (for two years) — Charles R. Gow and L. Lee Street.

The recommendation of the Board of Government, that the vote passed at the last annual meeting instructing the Secretary to prepare a certificate of membership be rescinded, was adopted.

The recommendations made by the Committee on the Library, in its annual report, were referred to the Board of Government with full powers.

On motion duly made and seconded, it was voted to refer to the Board of Government, with full powers, the question of appointing the special committees of the Society and the selection of members thereof.

On motion of Mr. Sherman, it was voted: That this meeting endorses the work of the Joint Committee on Clubhouse and approves of the scheme as reported to this meeting by the chairman.

President Bryant then delivered the following address:

It is fast becoming the practice for the retiring President to diagnose the real or imaginary evils which beset the Society and prescribe a cure.

In doing this, there is, of course, constant danger of substituting the methods of the ministry for those of medicine, and preaching a sermon. I suspect that what I have to say will partake of both.

A few years ago my predecessor, Mr. Worcester, bewailed the fact that so large a part of the Society work was done by the older members, with a resulting lack of interest and sympathy among the younger men.

Mr. Francis, in his annual address last year, indicated his inability to discover the actual existence of this trouble, and I find myself equally at a loss in locating any symptoms of this sort. I think the younger men have shown great interest in our meetings and excursions, and have contributed much of their time and energy to make both successful. I do think, however, that the attendance at regular meetings is not as large as could be wished, although it is steadily increasing.

The annual reports indicated a jump in the average attendance from 82 to 138 last year. This jump was not so real as it appears, however, since one special meeting with ladies from several other societies accounted for the greater part of the apparent increase.

For the present year, with the same figure of average attendance, and allowing for the joint meetings with the mechanical and electrical sections, and also for one small business meeting, it is apparent that the average attendance of our own members has increased to nearly one hundred.

With a resident membership of about four hundred and fifty, this means that such members attend the meetings on an average of twice a year.

I think this can be bettered, but I doubt if the proper course is to offer technical papers only, or to operate picture shows only, or to provide a free vaudeville only, — or, in fact, to provide any other features which can be found elsewhere in society or in the press.

Let us keep our technical papers and talk and conduct them in as informal a manner as possible, much as our informal meetings are now conducted. Then let us devote perhaps two or possibly four meetings a year to some subject of general interest, like the smoke prevention and electrification subject of this afternoon.

With due respect to precedent, I feel that we engineers as a body do not sufficiently interest ourselves in influencing the conduct of public affairs. We have been too sensitive about having our motives misunderstood, and too fearful that we should criticise the work of some other profession, or of some member of our own.

I do not think it incumbent on us to do the work which is being done by the Chamber of Commerce, for instance, but I do think that careful consideration and forceful advocacy of some one or more of the important questions of the day will give zest to our meetings, which will not only secure increased attendance of our members, but a general participation in the proceedings, which is so much to be desired.

In part this will be publicity work and, like all such, will indirectly react to our benefit.

Still another and important means of increasing the attendance and interest in our meetings is to increase our membership.

As stated at the recent engineering dinner, I am prepared to recommend to the Society that the word "civil" be dropped from our corporate name, and that we become nominally what in a degree we already are in fact, viz., a local body of engineers of all types. It might be wise to so alter our requirements for admission that membership in the various national organizations shall be a direct passport to our ranks.

When accepting office, I promised to follow up the headquarters or club house committee, and to do my best to secure prompt results. I confess, first, that I have not done as much in this line as I intended, and, second, that what little I have done has not been as productive of results as I had hoped.

Many society matters hinge on the satisfactory solution of this problem, and we are all extremely anxious that some definite workable scheme should be promptly set before us. I think that the committee's report will show hopeful signs in that direction.

Before this annual affair is over, you may hear something which, while in jocund vein, undoubtedly represents the thoughts of many of the younger men among our membership. It has been suggested to the Society that a committee should be appointed to collect reliable and comprehensive data regarding the pay of engineers in municipal, corporate and private employment in various parts of the country.

Such information would be of interest and value, not only to employees, but to employers. Of course the work of this committee would involve the expenditure of some money, and I am not ready now to recommend any new expenditures unless some means of curtailing our present current expenses can be devised.

I wish to take this opportunity to express the pleasure as well as honor I have had in serving as your President during the past year. The members, without exception, have coöperated with me most heartily. The new Board of Government has been most efficient, and the regular meetings which are now required have enabled it to dispatch much more business during the past year than ever before. I wish to thank the members of the board for their constant interest and activity.

The members then adjourned to the auditorium of the club house, where members and guests to the number of 155 sat down to the twenty-ninth annual dinner.

After the dinner, President Bryant again called the meeting to order and stated that the subject of the after-dinner talk would be "The Electrification of the Steam Railroads in the Boston Metropolitan District." Prof. George F. Swain opened the subject, speaking from the point of view obtained in the recent investigation and report by the "Big Four" Commission. He was followed by Mr. W. S. Murray, chief electrical engineer of the New York, New Haven & Hartford Railroad, who spoke particularly of the work which that company had done on its New York division and the work now in progress in the electrification at the Hoosac Tunnel on the Boston & Maine Railroad. He exhibited a large number of lantern slides showing details to the work under his charge.

Prof. Dugald C. Jackson also discussed the general subject of the electrification of steam railroads.

On motion duly made and seconded, the thanks of the Society were unanimously voted to Mr. Murray for his courtesy in appearing before the Society and presenting in such an interesting manner the work now in progress towards electrifying the steam railroads.

Before adjourning the meeting, the President expressed his regrets that the President-elect, Mr. Main, was at Panama in connection with the excursion of the American Society of Civil Engineers to examine the Panama Canal. He, however, called on Mr. Frederic H. Fay, Vice-President-elect, who briefly thanked the Society for the honor it had conferred in his election to office and joined in the regrets which all felt at Mr. Main's absence.

In the evening a "smoker" was held in the auditorium of the Boston City Club, at which the attendance was about three hundred. The "smoker" was of the same informal character as in former years, light refreshments being served and excellent music being furnished by an orchestra; the old songs of a year ago were also sung, and in addition, Mr. Josef Yarrach entertained the members for a half hour with card tricks and sleight-of-hand performances.

S. E. Tinkham, *Secretary.*

Annual Report of the Board of Government for the Year 1910-11.

Boston, Mass., March 15, 1911.

To the Members of the Boston Society of Civil Engineers:

In compliance with the requirements of the Constitution, the Board of Government submits its report for the year ending March 15, 1911.

At the last annual meeting the total membership of the Society was 727 of whom 687 were members of the Society, 3 honorary members, 15 associates and 18 were members of the Sanitary Section only.

During the year the Society has lost a total of 28 members: 11 by resignation, 10 by forfeiture for non-payment of dues, and 7 have died.

There has been added to the Society during the year a total of 102 members of all grades; 98 have been elected, 1 transferred from Engineers' Club of St. Louis, 2 reinstated and 1 has been elected to membership in the Sanitary Section. One member has been transferred from the Sanitary Section to the main Society.

The present membership of the Society consists of 2 honorary members,

746 members, 9 juniors, 23 associates and 17 members of the Sanitary Section only; making the total membership 797, a net gain of 74.

The record of the deaths during the year is:

George Leonard Vose, a past president of the Society, died March 29, 1910.
William Jackson died June 30, 1910.
Burton I. Drisko died January 8 1911.
Joseph R. Carr died January 27, 1911.
Louis E. Hawes died January 29, 1911.
Leonard P. Kinnicutt died February 6, 1911.

Ten regular, three special and one informal meetings of the Society have been held during the year. The average attendance at the regular and special meetings was 138, the same as last year, the largest being 350 and the smallest 22.

The following papers have been read at the meetings:

March 16, 1910. — John R. Freeman, "Los Angeles Aqueduct." (Illustrated.)

March 30, 1910 (special). — William F. Morse, "Practical Questions Concerned in the Collection and Disposal of Municipal Waste." Willis C. Merrill, "Garbage Disposal."

April 20, 1910. — Frederick H. Newell, "Engineering Work of the Reclamation Service." (Illustrated.)

May 18, 1910. — Luis G. Morphy, "East Boston Deep Water Terminals of the B. & A. R. R." (Illustrated.)

May 25, 1910 (special). — Consideration of Amendments to the Constitution and By-Laws.

June 15, 1910. — B. B. Colborne, "Repairing and Resurfacing Streets by the Lutz Surface Heater." (Illustrated.)

September 21, 1910. — Louis K. Rourke, "Work at the Panama Canal."

October 19, 1910. — Prof. Thomas A. Jaggar, Jr., and Prof. Charles M. Spofford, An Account of the Destruction of Cartago, Costa Rica, by the Earthquake of May 4, 1910." (Illustrated.) Discussion by Frank B. Gilbreth.

November 16, 1910. — Charles R. Gow, "Methods and Cost of Construction of Slow Sand Purification Plant for the new Springfield, Mass., Water Works." (Illustrated.)

December 21, 1910. — Memoir of E. P. Dawley. H. B. Andrews, "A New Theory for Reinforced Concrete Reservoirs." (Illustrated.) Charles H. Dutton, "The Design of Eccentrically Loaded Concrete Members Reinforced on One Face Only."

January 11, 1911 (informal). — Waterproofing of Concrete and Its Behavior in Sea Water."

January 25, 1911. — Memoir of Past President George L. Vose; memoir of William Jackson. Lieut. F. R. Harris, "Dry Docks and Dry-Dock Construction and a Description of the Principles of the Design and the Methods of Construction Employed in Dry Dock No. 4 at the Brooklyn Navy Yard." Discussion by James W. Rollins.

February 15, 1911. — Walter McCulloh, "Water Resources of the State of New York." (Illustrated.)

March 10, 1911 (ladies' night). — Desmond FitzGerald, "Nature Studies in Many Lands." (Illustrated.)

The Sanitary Section of the Society has had five meetings during the year, with an average attendance of 46. It also made an excursion to Hudson on June 1, 1910, in which 25 took part.

The papers read at the meetings of the Section were:

March 2, 1910. — Dr. George A. Soper, "Air Contamination." (Illustrated.)

May 4, 1910. — John H. Gregory, "The Sewage Disposal Plant at Columbus, Ohio." (Illustrated.)

December 7, 1910. — William B. Landreth, "The New York State Barge Canal." (Illustrated.)

December 28, 1910. — Charles Saville, "The Sewerage and Drainage of the Emscher-Genossenschaft, Germany." (Illustrated.)

February 1, 1911. — Prof. Samuel C. Prescott, "The Milk Supply of Boston, its Sources, Quality and Sanitary Importance." (Illustrated.)

The Board of Government has held fifteen meetings during the year, one or more having been held each month, except the month of August.

At the meeting held on June 15, 1910, the Society amended its Constitution and By-Laws. The important changes in the Constitution, relating to membership, are placing a minimum age limit of twenty-four years for the grade of members and establishing the new grade of juniors with a minimum age limit of eighteen years. The number of Directors was increased from two to four, and the three latest past presidents were made members of the Board of Government. The number required to constitute a quorum for the transaction of business was increased from ten to twenty-five.

The important changes in the By-Laws provide for stated meetings of the Board of Government and for the election of new members and of the librarian by the Board, instead of by vote of the Society as formerly. The annual dues of members and associates were slightly increased, those of residents, in both grades, being placed at ten dollars and of non-residents at six dollars; the dues of the new grade of juniors were placed at five dollars for residents and four for non-residents.

In June last the Board established an Employment Bureau, to be a medium for securing positions for members of the Society and for furnishing members and others desiring men capable of filling responsible positions. Two lists are kept on file at the Society rooms, one of positions available and the other of men available, giving in each case such information as has been presented. Brief abstracts from these applications have been printed in the next *Bulletin* issued after their receipt. The Board is very glad to be able to state that this bureau has been the means of securing positions and assistants for a reasonable number of those who have registered.

The pay-station telephone, which was installed in the Society rooms last June, has been a great convenience to those having occasion to use our rooms, and it is hoped that members requiring pay-station service will use this telephone when in the vicinity of the rooms.

Following a suggestion in the address of the President at the last annual meeting, the Society, by vote, instructed the Secretary to prepare a certificate of membership. As he did not feel authorized, under the vote, to call upon the Society to bear the expense of preparing these certificates unless there was reasonable assurance that a sufficient number would be purchased to reimburse the Society, notices were printed in the May and June *Bulletins* requesting members who desired such a certificate to communicate with the Secretary at once. Less than twenty-five responses were received in answer to these notices. As so few of the members seem to care for a certificate of membership, the Board recommends that the vote instructing the Secretary to prepare such a certificate be rescinded.

The second dinner of the engineers of Boston, under the joint management of the American Society of Mechanical Engineers, the Boston Section of the American Institute of Electrical Engineers and this Society, was held this year at Hotel Somerset on January 31, 1911. The attendance was nearly four hundred and was as enjoyable an occasion as that of a year ago.

The matter of awarding a prize each year for the best paper presented to the Society, which was referred to the Board at the last annual meeting, has been considered. Through the generosity of Mr. Desmond FitzGerald, provision has been made for the award of a bronze medal. The design of the medal has been referred to Mr. FitzGerald, and rules for its award were adopted by the Society at the January meeting, the prize to be entitled the "Desmond FitzGerald Medal."

The affairs of the Society appear to be in a prosperous condition, notwithstanding the Treasurer's report of a deficit. This deficit was anticipated last year on account of the difficulty of making any advance in the annual dues which should be in season to materially affect this year's accounts.

An analysis of the Treasurer's comprehensive statement indicates a continuous increase in current receipts during the last four years, those of 1910 being approximately nine hundred dollars greater than those of 1907. It is anticipated that the increased dues will raise these receipts from $5 600 for the present year to $6 800 for the coming year.

The expenses for the past four years have increased much more rapidly than the income. If they are no larger this year than for the year past, there will be a surplus of $300 to apply towards the loan of $700 from the permanent fund.

It is evident to this Board that rigid economy of current expenditures must be practiced, or additional sources of income must be discovered. The only additional source of income which appears worthy of consideration is the increase in advertisements, and it is doubted whether this can be materially changed to advantage.

In the expenses there is a slow and natural growth in the payments made to the Association for the JOURNAL, but for the items of printing, postage, salaries, reporting meetings, stereopticon and books, the expenditure is increased from over $1 700 to over $3 300, or to nearly double the amount of 1907–08. It would appear, therefore, that any reduction must be made in the five items of the Treasurer's report just mentioned.

A further inspection of the Treasurer's figures will show that there has been a considerable shifting in the investment of the permanent fund. An attempt has been made to obtain securities which were entirely safe and conservative, but which would yield a larger income than savings banks, or some of the older securities. The result is that the interest on the permanent fund has been nearly doubled, and is approximately three times that of 1907–08.

The Board has taken no action during the year regarding new headquarters, but it anticipates with pleasure a report from its members on the general committee, or a report from the committee itself.

For the Board of Government,

HENRY F. BRYANT, *President.*

Report of the Secretary for the Year 1910–11.

S. Everett Tinkham, Secretary, in account with the Boston Society of Civil Engineers.

For cash received during the year ending March 15, 1911.

From Entrance Fees:			
81 Members	at $10.00 =	$810.00	
8 Associates	at 10.00 =	80.00	
1 Member transferred from San. Sec.	at 5.00 =	5.00	
9 Juniors	at 5.00 =	45.00	
1 Sanitary Section Member	at 5.00 =	5.00	
Total from Entrance Fees			$945.00
From dues for year 1908–09		$8.00	
From dues for year 1910–11 (Members and Associates):			
394 at $8.00 =	$3 152.00		
23 at 4.00 =	92.00		
243 at 5.00 =	1 215.00		
6 at 2.50 =	15.00		
666		4 474.00	
From dues for year 1910–11 (Sanitary Section):			
17 at $5.00		85.00	
683 Total number paying dues for 1910–11.			
From dues for year 1911–12:			
4 at $10.00 =	$40.00		
2 at 6.00 =	12.00		
6		52.00	
Total for dues			4 519.00
From sale of Journals			4.50
From advertisements from June 28, 1910			597.50
From rents from July 1, 1910			583.33
Total receipts			$6 749.33

March 11, 1911.

We have examined the above report and found it correct.

(Signed) Frederic H. Fay,
J. P. Snow,
Directors, Boston Society of Civil Engineers.

Boston, March 15, 1911.

To the Boston Society of Civil Engineers:

The Treasurer submits as his annual report for the year ending March 15, 1911, three tabular statements as follows.

TABLE I. — PROFIT AND LOSS STATEMENTS.

Income:	1907–8.	1908–9.	1909–10.	1910–11.
Members' Dues	$4 114.00	$4 113.00	$4 332.00	**$4 567.00**
Advertisements	580.00	1 090.00	850.00	**1 004.50**
Library Fines	3.25	4.24	3.50	**4.75**
Sale of JOURNALS	.....	.....	6.50	**4.50**
Interest on Current Funds	.....	.....	.....	**10.47**
Total Current Receipts	$4 697.25	$5 207.24	$5 192.00	**$5 591.22**
Entrance Fees	$330.00	$600.00	$670.00	**$945.00**
Contributions to Permanent Fund	100.00	100.00	100.00	**200.00**
Interest on Permanent Fund	415.34	636.72	659.07	**1 231.78**
Receipts account Permanent Fund	$845.34	$1 336.72	$1 429.07	**$2 376.78**
Surplus Account	.....	.....	.....	**1.50**
Deficit, Current Funds	.....	.....	334.18	**940.26**
	$5 542.59	$6 543.96	$6 955.25	**$8 909.76**

Expense Items:				
Association Eng. Societies	$1 272.00	$1 329.50	$1 661.62	**$1 912.62**
Rent (net)	935.00	950.00	950.00	***856.74**
Light	31.03	36.30	48.54	**53.76**
Printing, Postage, etc.	986.62	1 544.16	1 397.48	**1 770.96**
Salaries	550.00	550.00	750.00	**1 007.00**
Reporting Meetings	128.38	100.00	152.50	**282.00**
Stereopticon	90.00	165.00	135.00	**180.00**
Books	41.75	53.35	83.00	**72.10**
Binding	97.25	145.20	73.20	**81.20**
Periodicals	26.50	28.50	36.50	**31.00**
Incidentals and Repairs	229.73	71.19	41.83	**79.45**
Insurance	.....	8.88	8.88	**26.38**
Telephone	.....	.....	.....	**59.82**
Sanitary Section	60.00	60.00	60.00	**45.00**
Annual Meeting, etc.	80.60	.....	118.88	**43.45**
Depreciation on Furniture	28.00	33.50	8.75	**31.50**
Total Current Expenses,	$4 556.86	$5 075.58	$5 526.18	**$6 532.98**
Transferred to Permanent Fund,	845.34	1 336.72	1 429.07	**2 376.78**
Profit Bal., Current Funds,	140.39	131.66	.....	.....
	$5 542.59	$6 543.96	$6 955.25	**$8 909.76**

* This should be $935 for a full year, but the smaller amount is to reconcile with statement of accounts receivable and payable, which were not reported last year.

TABLE 2. — COMPARATIVE BALANCE SHEETS.

	March 16, 1910.	March 15, 1911.
Assets:		
Cash	$2 780.05	$260.63
Coöperative Banks	9 022.95	7 447.38
Savings Banks	3 964.15	370.33
Bonds	10 463.00*	19 430.50†
Accounts Receivable		270.83‡
Library (estimated value)	7 500.00	7 500.00
Furniture (estimated value)	600.00	598.50
Current Fund Deficit (owed to Permanent Fund),		552.75
	$34,330.15	$36,430.92
Liabilities:		
Permanent Fund	$25 842.64	$28 219.42
Current Fund, Balance	387.51	
Accounts Payable		113.00§
Surplus	8 100.00	8 098.50
	$34,330.15	$36 430.92
Increase in net assets for the year		$1 548.02

TABLE 3. — INVESTMENT OF PERMANENT FUND, MARCH 15, 1911.

Bonds:		Value (1910).
4	$1 000 Boston El. Ry. 4½ per cent bonds, due 1937, principal registered, at 105½, =	$4 220.00
3	$1 000 Am. Tel. & Tel. Co. 4 per cent col. tr. bonds, due 1929, principal registered, at 91¼ =	2 737.50
1	$600 Republican Valley R. R. 6 per cent bond, due 1919, at 103 =	618.00
3	$1 000 C. B. & Q. R. R. joint 4 per cent registered bonds, due 1921, at 96¼ =	2 887.50
2	$1 000 Union El. Lt. & Pr. Co. 5 per cent bonds, due 1932, principal registered, at 102½ =	2 050.00
2	$1 000 Blackstone Valley Gas & Elec. Co. 5 per cent bonds, due 1939, principal registered, at 99⅞ =	1 995.00
2	$1 000 Hardwood Elec. Co. 5 per cent bonds, due 1939, principal registered, at 98 =	1 960.00
2	$1 000 Dayton Gas Co. 5 per cent bonds, due 1930, principal registered, at 100 =	2 000.00
1	$1 000 Milford & Uxbridge St. Ry. Co. 5 per cent bonds, due 1918, principal registered, at 96¼ =	962.50
		$19 430.50

* Bonds taken at market value, which is $169.50 less than par value.

† Without allowance for changes in market value during the year, which have been slight.

‡ Rent from subtenants, to March 1, 1911.

§ Dues paid in advance, $52; telephone rental, $61.

Savings Banks:		
Boston Five Cent Savings Bank (including interest to October, 1910)	$127.41	
Franklin Savings Bank (including interest to February, 1911)	242.92	
		$370.33
Coöperative Banks:		
25 shares Merchants Co-operative Bank (including interest to March)		$3 403.85
25 shares Workingmen's Co-operative Bank (including interest to March)		1 561.08
25 shares Volunteer Co-operative Bank (including interest to January)		2 482.45
		$7 447.38
Cash in Old Colony Trust Company		260.63
Due from Current Funds, account deficit	$552.75	
Due from Current Funds, account difference between accounts receivable and accounts payable	157.83	
		710.58
Total Permanent Fund		$28 219.42

Comments upon Tables.

Table 1 contains profit and loss statements for the three preceding years, as well as for the year 1910–11. This includes all transactions, those relating to the Permanent Fund as well as current fund accounts, but the items are separated so that each can be taken by itself. It is seen that the current income amounted to $5 591.22, and current expenses $6 532.98, showing a deficit of $941.76. There has been added to the Permanent Fund $2 376.78, of which $1 231.78 was for interest. (The increase in the Permanent Fund last year was $1 429.07.)

In examining the balance sheets at the beginning and end of the year, it should be remembered that no account is taken of any interest accrued since the last regular interest periods of the several investments; also of the fact that some of the advertisers have paid in advance for advertising not yet received; rent due to and from the Society has been computed to March 1; and the cost of the March, 1911, *Bulletin* is not included. These conditions are the same every year, although the amount corresponding will vary somewhat.

A portion of the Permanent Fund has been loaned to the Society for its current needs, by authority of the Board of Government, in order that no bills should remain unpaid at the end of the year. The amount of the loan is $710.58, although only $552.75 of this represents an actual shortage of resources; the remaining $157.83 is required because certain rents due the Society have not yet been collected.

Respectfully submitted,

Charles W. Sherman, *Treasurer.*

Boston, March 15, 1911.

We hereby certify that we have examined the Treasurer's accounts for the year 1910–11; that all receipts are properly accounted for, and that there are proper vouchers for all payments. The accounts are correctly cast, and the net results, namely, a deficit of $710.58 in the current fund, and a cash balance of $260.63 in the Permanent Fund, are correct.

One of us has also examined the securities and investments belonging to the Permanent Fund, and finds them to be as stated in the table accompanying the Treasurer's report, — showing a present book value of $28 219.42, which is $169.50 less than the par value.

F. H. Fay,
J. P. Snow,
Directors.

Report of the Library Committee.

The fortieth annual report of the library since it was organized, and the report for the year 1910–11, is herewith submitted.

The number of books added to the library the past year has been 392, of which 163 were bound in cloth and 229 in paper. Many of the bound volumes consist of magazines and society publications or of municipal reports, received in paper and bound in convenient form. The library now contains 6 742 volumes in cloth.

Our honored fellow-member and liberal giver, Mr. Clemens Herschel, has been especially generous the past year, perhaps most notably in the gift of the entire works of Herbert Spencer, fresh from the publisher. It may be explained here that Mr. Herschel donates mainly two classes of books, those on engineering subjects, and books on any subject written by men who at some time in their career followed the engineering profession. One new section has lately been added to the Herschel library, but more room should speedily be furnished for it, as all these sections are overflowing. A number of the Herschel books have been bound in cloth in conformity with an agreement with Mr. Herschel.

During the year, 228 books have been loaned to members. Fines on books have been collected amounting to $4.75.

The plan-case bought two years ago for the preservation of the United States government topographical sheets is now packed with these plans, so that they are almost inaccessible. These plans are rapidly increasing in number, and a second twelve-drawer plan case should be bought at once, as previously recommended.

Five book reviews have been written by members, for which the thanks of the committee are hereby tendered.

The one crying need of the library is for more room, but this cry has been chronic so long that it is too well understood to require comment. The committee would suggest that a storage room be procured, not necessarily near the library, where books not in use can be stored until the Society secures larger quarters.

Out of the sum of $75 appropriated for current engineering books, twenty books have been bought at a cost of $64.35, and every current volume asked for by any member has been bought.

The following four specific recommendations are made:

(1) That $75 be appropriated for the purchase of current engineering books the coming year.

(2) That $30 be appropriated for the purchase of a second plan-case.

(3) That a room be hired for storage.

(4) That a number of sections be bought for the proper housing of the Herschel library.

FREDERIC I. WINSLOW,
H. T. STIFF,
J. M. SINER,
G. V. WHITE,
EDWIN R. OLIN,
Committee.

REPORT OF THE COMMITTEE ON EXCURSIONS.

To the Members of the Boston Society of Civil Engineers:

During the past year ten excursions have been made by the Society, as follows:

	Attendance.
April 20, 1910, to the American Sugar Refinery Company, South Boston,	7
June 15, 1910, to the Grade Crossing Elimination at Worcester, Mass.	40
August 24, 1910, to the Cape Cod Canal (21 automobiles)	94
September 12, 1910, to the Harvard Aviation Meet, Squantum, Mass.	160
September 21, 1910, to the Massachusetts Cotton Mills, Lowell, and Arch Bridge at Nashua	24
October 19, 1910, to observe tests of concrete beams at the Massachusetts Institute of Technology laboratories	30
November 16, 1910, to Filter Beds at North Attleboro, Mass.	30
December 21, 1910, to the Beacon Hill Tunnel	100
January 25, 1911, to the Cambridge Subway	210
February 15, 1911, to the New United States Custom House, Boston, Mass.,	75

Total attendance, 770; average attendance, 77.

The committee has continued to collect data as to "new engineering work," either in progress or contemplated, for publication in the *Monthly Bulletin* of the Society, and has contributed thirty-six pages to the nine *Bulletins*, — four pages per issue.

Messrs. T. W. Norcross and G. E. Howe resigned from the committee and Messrs. L. E. Moore and F. L. Murray were appointed to take their places.

There is a balance in the hands of the committee of $53.14.

Respectfully submitted,

FRANK H. CARTER, *Chairman.*
H. K. HIGGINS.
L. E. MOORE.
F. L. MURRAY.
RICHARD K. HALE, *Secretary.*

REPORT OF THE EXECUTIVE COMMITTEE OF THE SANITARY SECTION.

BOSTON, MASS., March 1, 1911.

At the annual meeting of the Sanitary Section, held March 2, 1910, the following committees were continued: On Rainfall and Run-Off; on Collection and Tabulation of Sewerage Statistics; and on Uniform Specifications for Sewer Pipe.

The following papers (all illustrated with lantern slides) have been read and discussed at regular and special meetings:

March 2, 1910. Dr. George A. Soper, "Air Contamination."
May 4, 1910. John H. Gregory, "The Sewage Disposal Plant at Columbus, Ohio."
December 7, 1910. Wm. B. Landreth, "The New York State Barge Canal."
December 28, 1910. Charles Saville, "The Sewerage and Drainage of the Emscher-Genossenschaft, Germany."
February 1, 1911. Prof. Samuel C. Prescott, "The Milk Supply of Boston, Its Sources, Quality and Sanitary Importance."

On June 1 the Section made an excursion to Hudson, Mass., visiting the wool waste recovery plant of the Hudson Worsted Company and the sand filter beds of the town of Hudson. The party, numbering twenty-five, then took the train to Wayside Inn, where dinner was served and a pleasant afternoon spent.

The attendance at meetings has been as follows:

Annual meeting	43
May meeting	45
December 7th meeting	40
December 28th meeting	60
February meeting	40

Exclusive of the June excursion, the average attendance at meetings has been 46; the average attendance for previous year was 49.

The additions to the membership of the Section are as follows: *By election*, 1 member. *By enrollment from the Society*, 4 members.

Number of members who are also members of main society	142
Members of Sanitary Section only	18
Total membership of Section	160

During the past year the Constitution and By-Laws of the main society have been so amended that no further enrollment can be made for membership in the Sanitary Section alone, and eventually all members of the Sanitary Section will thus be members of the main society. It is believed that no serious detriment will be occasioned thereby to the growth of the Section, as, in the case of persons engaged actively in sanitary work who may not be eligible for or care to assume full membership in the main society, they may, by becoming associate members of the main society, be eligible for membership in the Sanitary Section.

Interest in the work of the Section seems unabated, and it is evident that its meetings enable the presentation and discussion of subjects of importance to sanitary engineers, for which sufficient time is not available in the program of the main society.

For the Executive Committee,

H. K. Barrows, *Clerk.*

Report of Committee on Rainfall and Run-Off.

The Committee on Rainfall and Run-Off of sewered areas begs leave to submit the following report:

Your committee hoped that during the year past it would be able to interest more engineers in the work in which it was engaged, and that it would

be able to report more gaging stations in operation at this time. It has found it practically impossible, however, to do this.

All it can report is, that records are still being taken in three cities and that in two of these cities the data have been reduced to a form suitable for publication. It also has other data that it hopes soon to put in shape for publication

The committee realizes that it requires a large amount of perseverance and much careful oversight to obtain records of any value and that observation must be continued over a considerable period of time.

A single experience will illustrate this. In the year 1910, in the city of Pawtucket, there were one hundred and nine storms recorded on the rain gage, but only sixteen of these storms gave run-off data worth tabulating. Observations taken in this city since April, 1905, have given only sixty records that were complete and of any interest.

It is to be noted, however, that the last three years have been years of very low rainfall, and therefore deficient in record-producing storms.

Several gaging stations have been established in Fall River, Mass., but no records have yet been obtained.

The committee has been in correspondence with a committee of the Municipal Engineers of New York City, engaged in a similar undertaking, and has been promised a copy of the data collected by that committee during the year 1910.

Your committee would, therefore, suggest that it be given authority to publish in the JOURNAL the data collected, just as soon as it can be put into a form for publication.

Respectfully submitted,

GEO. A. CARPENTER, *Chairman.*

REPORT OF COMMITTEE ON MANUFACTURE OF SEWER PIPE.

BOSTON, MASS., February 27, 1911.

TO THE MEMBERS OF THE SANITARY SECTION, BOSTON SOCIETY OF CIVIL ENGINEERS:

Gentlemen, — Your Committee on Manufacture of Sewer Pipe, which was continued by vote of the Section at the last annual meeting, in order to coöperate, if occasion should afford, with the committee appointed by the American Society for Testing Materials, to investigate the subject of the manufacture of sewer pipe and to consider the feasibility of the adoption of standard specifications therefor, regrets to report but little substantial progress. Mr. F. A. Barbour, a member of the committee, who is also a member of the committee of the American Society for Testing Materials, reports that an elaborate set of tests has been outlined, the carrying on of which will necessitate a considerable lapse of time, and the appropriation of more or less money. It appeared to your committee, therefore, that it would be distinctly unfortunate for the Sanitary Section to suggest standard specifications at this time, which might require substantial modification hereafter, in the light of the results obtained from the proposed experiments, particularly as the specifications would not be likely to accomplish anything in the direction of unifying practice or of modifying the present incongruities, relative to the thickness of sewer pipe of the different dimensions.

In the light of the fact that delay is likely to be substantial, your committee asks to be discharged, unless it shall be thought desirable to continue it for service, in case of possible coöperation between this Section and the American Society for Testing Materials.

Respectfully submitted,

LEONARD METCALF, *Chairman.*
F. A. BARBOUR.
E. S. DORR.
CHARLES R. FELTON.
LOUIS D. THORPE.

ATTENDANCE AT ANNUAL MEETING.

The following list contains the names of members who registered as being in attendance at the Annual Meeting. The list is not complete, as some members failed to register, and it does not contain the names of all guests. Total attendance of members and guests at the various functions is estimated at over 300.

Adams, E. P.
Adams, H. S.
Alden, H. K.
Allbright, E. F.
Allen, C. F.
Allen, C. M.
Alvord, H. B.
Bailey, F. S.
Bailey, W. M.
Barbour, F. A.
Barrows, H. K.
Bartlett, C. H.
Bateman, F. W.
Beugler, E. J.
Bickford, J. W.
Bidwell, L. B.
Bigelow, W. W.
Breed, C. B.
Brewer, Bertram
Brock, N. S.
Brown, A. F.
Brown, C. L.
Bryant, H. F
Burley, H. B.
Butcher, W. L.
aɔmpbell, T. F.
Carty, J. E.
Chadwick, H. M.
Charnock, F. R.
Chase, J. C.
Churchill, W. W.
Clapp, O. F.
Clark, C. S.
Cluɛas, G. M.
Coburn, H. L.
Coffin, S. P.
Coggeshall, R. C. P.
Conner, S. L.
Cook, M. T.
Cowles, L. S.
Curtis, R. E.
Cutter, L. F.
Davis, E. S.
Davis, W. W.
Day, E. W.
Dean, A. W.
Deane, A. M.
DeLong, H. C.
Doane, A. O.
Dodd, C. H.
Dorr, E. S.
Doten, C. C.
Douglass, W. B.
Eichorn, F. C. H.
Elkins, C. R.
Ellis, J. W.
Ellis, W. H., Jr.
Emerson, G. D.
Evans, R. R.
Farwell, H. L.
Fay, F. H.
Ferguson, J. N.
Fernald, C. T.
Flaws, J. B.
Fox, Benjamin
Francis, G. B.
French, H. W.
Fuller, A. D.
Gannett, C. H.
Garrod, J. A.
Gould, J. A.
Gow, C. R.
Gunby, F. M.
Hale, R. K.
Hamilton, G. W.
Hammatt, E. A. W.
Harrington, D. A.
Harrington, Ephraim

Hartwell, H. C.
Haskell, E. A.
Hastings, L. M.
Hatch, A. E.
Hazard, T. G., Jr.
Hazelton, C. W.
Henderson, L. P.
Higgins, H. K.
Hobson, G. F.
Hodgdon, F. W.
Hodges, A. W.
Hollis, I. N.
Houghton, C. E.
Howard, J. L.
Howe, E. W.
Howland, A. H.
Jackson, D. C.
Johnson, H. M.
Johnson, W. S.
Keith, H. C.
Kendall, F. H.
Kent, Willard
Kidd, A. L.
Kimball, E. R.
Kimball, F. C.
King, G. A.
Knowlton, C. F.
Knowlton, H. S.
Lanza, Gaetano
Larned, E. S.
Lawrence, F. K.
Lawton, L. C.
Learned, W. F.
Libbey, J. H.
Lincoln, J. G.
Lovis, A. M.
McClintock, W. E.
McCue, H. M.
McInnes, F. A.
McNulty, J. M.
Manley, L. B.
Marble, A. D.
Marsh, C. R.
Marston, F. A.
Miller, H. A.
Miner, F. M.
Moore, L. E.
Morse, W. P.
Morphy, L. G.
Morrill, F. P.
Morris, F. H.
Morrison, W. H. Jr.
Moses, E. M.
Moses, J. C.
Moultrop, I. E.
Murray, F. L.
Nelson, G. A.
Newton, J. B.
Norris, W. H.
Olin, E. R.
Osborn, J. F.
Parker, A. W.
Parker, Theodore
Parlin, R. W.
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Pettee, E. E.
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Pratt, H. B.
Putnam, C. E.
Read, R. L.
Rice, R. E.
Rich, B. A.
Richardson, E. B.
Ripley, H. L.
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Robinson, L. C.
Rogers, E. H.
Ross, C. W.
Ross, E. W.
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Sanborn, F. B.
Savory, E. E.
Sawtelle, H. F.
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Scouler, Daniel, Jr.
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Servis, G. O. W.
Shaw, W. T.
Sherman, C. W.
Small, Gilbert
Smith, M. B.
Snow, J. P.
Soutar, G. P.
Spalding, F. P.
Spofford, C. M.
Stearns, F. P.
Stiff, H. T.
Stone, J. E.
Sutherland, R. H.
Sutton, David
Swain, G. F.
Tarbell, A. E.
Taylor, L. A.
Thompson, S. E.
Thorndike, S. H.
Thorpe, L. D.
Tinkham, C. S.
Tinkham, S. E.
Toof, F. L.
Trefethen, E. M.
Tucker, J. I.
Tucker, L. W.
Turner, C. C.
Varney, H. A.
Vesper, R. A.
Walker, P. B.
Webb, D. C.
Westcott, F. T.
Weston, R. S.
Whitney, F. O.
Whitney, H. L.
Whittet, R. M.
Wiley, W. T.
Winslow, F. I.
Wood, D. M.
Wood, F. J.
Wood, H. B.
Woods, H. D.
Woodfall, J. L.
Worcester, J. R.
Wright, Edward, Jr.

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Addis, W. G.
Armstrong, K. P.
Andrews, H. B.
Appleton, T. A.
Ashton, H. H.
Ayer, John
Ayres, M. V.
Bancroft, W. B.
Barry, W. J.
Bates, C. L.
Beal, A. B.
Beaudry, C. S.
Bellamy, A. M.
Botsford, H. G.
Brown, A. S., Jr.
Byrne, G. M.
Burden, H. P.
Busteed, W. A.
Cahill, J. H.
Chadbourne, E. M.
Chase, G. H.
Clapp, F. O.
Clough, G. A.
Craig, D. R.
Dennison, J. P.
Eaton, A. C.
Embuske, C. C.
Emerson, W. L.
Freeman, F. B.
Gannon, W. J.
Gowen, Sumner
Haskell, A. E.
Hersey, G. C.
Hovey, Philip
Hodges, Arthur
Hyde, L. W.
Keith, G. M.
Keyes, J. M.
Kimball, F. M.
Lamson, J. S.
Lawton, C. F.
Lichtner, W. O.
McCutcheon, N. D.
McInnes, A. A.
Manley, Henry, Jr.
Marsh, E. L.
Mellish, W. H.
Moore, C. A.
Murray, W. S.
Negus, A. S.
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Putnam, Worcester
Reilly, L. B.
Rice, C. W.
Rowan, J. A.
Schwartz, Samuel
Shaw, A. L.
Sinclair, W. F.
Snow, Ralph
Springer, E. R.
Stinson, J. W.
Uhl, W. F.
Vermard, W. L.
Wade, E. C.
Waite, W. N.
Warren, E. L.
Wells, R. W.
Whitecross, F. F.
Whitney, G. H.

Boston, April 5, 1911. A special meeting of the Boston Society of Civil Engineers was held at the Boston City Club this evening at 8 o'clock.

The Students taking the course in civil engineering at Harvard University, at Tufts College and at the Massachusetts Institute of Technology had been invited to be present at this meeting and about three hundred accepted the invitation.

Mr. Charles T. Main, President of the Society, called the meeting to order and welcomed in fitting terms the guests of the evening.

Mr. George B. Francis, a Past President of the Society, gave an illustrated talk on "The Engineering Features of Pennsylvania Terminal Station in New York City.

At the conclusion of the talk, light refreshments were served and a social hour enjoyed, enlightened by college songs by the students. The attendance was about 350.

S. E. Tinkham, *Secretary.*

NEW ENGINEERING WORK.

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 85 Water St., Boston, before the first of each month.)

Commonwealth of Massachusetts. — METROPOLITAN WATER AND SEWERAGE. — *Water Works.* — Work has been resumed on tunnel on 60-inch Weston Aqueduct supply main near Grant Avenue and Commonwealth Avenue, in Newton, and the rock tunnel is being trimmed to line and grade.

New 40-million gallon per day high service pumping engine at Chestnut Hill Pumping station is now in operation.

HARBOR AND LAND COMMISSION. — SOUTH BOSTON FLATS : —

At the fish pier, stone for the heavy seawall is being laid under water. Dredges are preparing the trench and supplying stone and gravel ballast for the foundations of the walls.

Near the Mosquito Fleet Yacht Club House, South Boston, an extenston to the anchorage basin of about 1000 ft. by 600 ft. is being dredged to a depth of 6 ft. at mean low water; a portion of the channel is also being dredged to a depth of 7 ft.

In Centreville River, near East Bay, Osterville, the hydraulic dredge has resumed work, which was suspended for the winter, excavating a channel to the depth of 5 ft. at mean low water.

Work has also been resumed at Hingham, dredging an anchorage basin to a depth of 6 ft.

In Cotuit Harbor a dredge is removing a small shoal from the entrance channel.

CONTRACTS HAVE BEEN LET FOR THE FOLLOWING WORK : —

At Lobster Cove, Annisquam, Gloucester, dredging to a depth of six feet of an anchorage basin about 268,000 sq. ft. in area, and a channel about 500 ft. long connecting the anchorage basin with the main channel of Annisquam River.

In Boston Harbor, opposite the Leyland Line Pier, Grand Junction Wharves, East Boston, dredging an area from 500 to 800 ft. wide and about 1100 ft. in length to a depth of 35 ft., between the pier and main ship channel.

At Deacon's Pond Harbor, Falmouth, dredging to a depth of 7 ft. a shoal at the entrance, and an additional area about 350 ft. square.

At Oak Bluffs, Martha's Vineyard, the jetties and rip-rap at the entrance to Lake Anthony are to be strengthened, also dredg-

ing is to be done to deepen the entrance channel and a part of the harbor.

At Bass River, Yarmouth, the westerly timber jetty, about 970 ft. in length, is to be reinforced with stone riprap placed along both sides.

Bids are to be received until April 14, for work as follows:

At the mouth of Scorton River, East Sandwich, about 400 ft. in length of stone jetty to connect existing outer portion of jetty with the shore.

Clearing boulders from the channel of North River in the towns of Marshfield, Norwell, Hanover and Pembroke.

Building about 400 ft. in length of stone jetty on the southerly side of the mouth of Ipswich River, in the town of Ipswich.

City of Boston. — Public Works Department. — *Highway Division.*

Westcott Street, from W. Park St. to Talbot Ave., Macadam.
Morton Street, from Blue Hill Ave. 580 ft. easterly, "
Old Colony Ave., from Dorchester St. to Hyde St., "
Addison Street, from Saratoga to Pope St., "

Sewer and Water Division. — *Work in progress.* — Stony Brook Conduit in Private Land at Forest Hills Sq.

Bridge and Ferry Division. — *Work in progress.* — Charlestown Bridge—Cleaning the steel work of the draw span by the sand blast process and painting. Dover St. Bridge—Repairs to turntable and other parts of the draw span will be in progress after May 1st. Dock for Fire Boat No. 31 at North End Park is now under construction.

Boston Transit Commission. — *Work in progress April 15, 1911.* — In Section 2 of the Beacon Hill Tunnel, which section is under Boston Common, the bellmouth approach and the double arched roofed portion of the station are nearly completed. The earth core is being excavated and the invert is being built. Work is also progressing under the Park Street station of the Tremont Street subway, where the old structure requires supporting while the new construction is going on. About one-half of the concrete invert and floor of the old structure has been removed and replaced by heavy steel beams and concrete, forming the roof of the new structure. Tremont Street at the junction of Winter Street has been bridged over and excavation is now going on underneath Coleman Brothers are the contractors.

Cape Cod Canal. — Sandwich, Mass. Spring work on the Cape Cod Canal has been started with an additional plant. Three dipper dredges are now at work in the Eastern Section and have progressed westward one and one-half miles from the entrance to the Keith Car & Mfg. Company's plant at Sagamore, up to which point the canal is virtually completed. Work on the breakwater, which is nearly one-half done, will be resumed next month and will probably be completed during the coming season

At the Western end two dredges are at work in Buzzard's Bay deepening the approach channel and two more will be added April 1st.

The Bourne Highway Bridge is nearly erected and will be completed May 1st.

The railroad reconstruction is nearly completed for the Woods Hole Branch connection and the steam shovel is making good progress on connecting the main line through Bourne Village.

Work on the railroad reconstruction near Bournedale will shortly be started.

New Haven. — The Aberthaw Construction Co. are putting in the heavy floor for the cartridge storehouse of the Winchester Repeating Arms Co. They have installed a central elevator plant, and are spouting the concrete to every part of the work. This covers an area of 12,000 square feet. This form of distribution offers many advantages for reinforced concrete construction and will undoubtedly be largely used in the future.

Lawrence. — The Aberthaw Construction Co. have actively resumed work at the Pacific Mills new Print Works. The mushroom flat slab floors of the Finishing Building are being placed in a rapid and systematic manner.

Quincy, Mass. — The Fore River Shipbuilding Co. has the following new work in progress: —

Argentine Battleship Rivadavia, 27,600 tons.

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Torpedo Boat Destroyer Henley, 750 tons.

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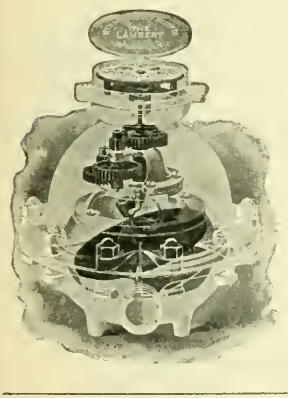

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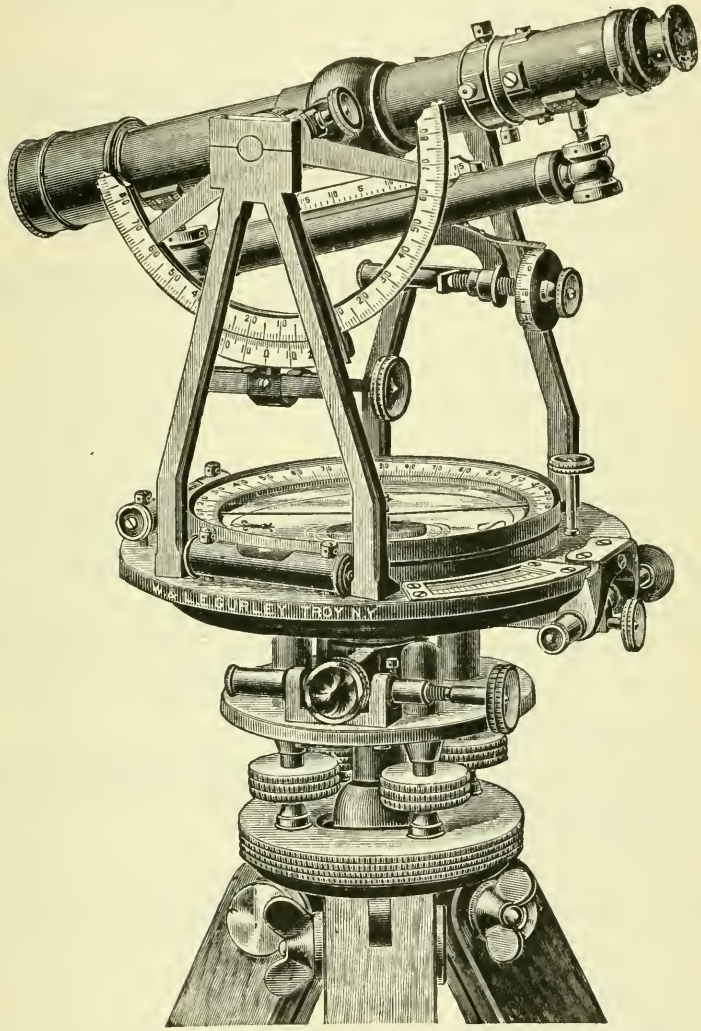

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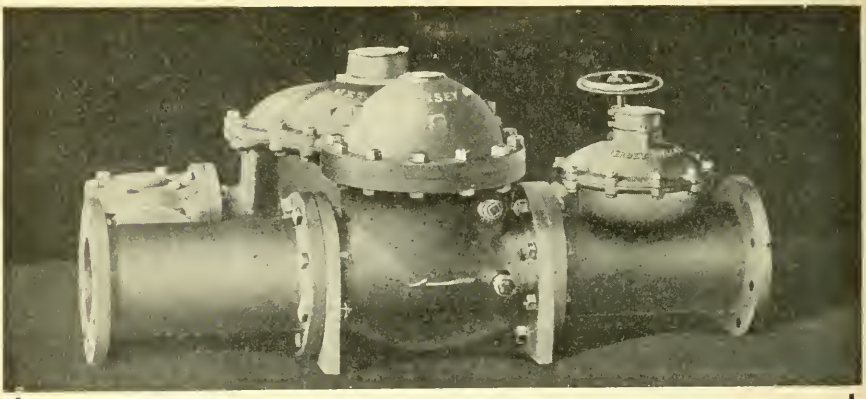

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BOSTON SOCIETY OF CIVIL ENGINEERS.

ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. MAY, 1911 No. 52

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN.

May 17, 1911. Joint meeting with Am. Soc. Mech. Engrs. and Am. Inst. of Electrical Engrs., at 7.30 P. M.

May 17, 1191. Excursion to Lawrence and Haverhill leaving Boston at 1.15 P. M.

REGULAR MEETING.

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, May 17 1911, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

At 8 o'clock a joint meeting will be held with the American Society of Mechanical Engineers and the Boston Section of the American Institute of Electrical Engineers, under the direction of the latter Society.

Mr. Fred M. Kimball, Manager of the Small Motor Department, of the General Electric Company, will speak on the subject of "The Electric Motor in the World's Work." He will treat this subject in a non-technical manner, first giving a history of the development of motor drive and will outline underlying principles of the application of motors to commercial work, and will illustrate his talk with the steropticon.

S. E. TINKHAM, *Secretary.*

EXCURSION TO LAWRENCE AND HAVERHILL.

Arrangements have been made for an excursion of the society on the afternoon of May 17, 1911, to Lawrence and Haverhill to inspect work in progress at those places.

Members intending to participate should take the 1.15 P. M. train for South Lawrence where the party will be met by a special car of the Boston and Northern Street Railway and be taken to the Pacific Mills.

A stop of about one hour will be made at this point to inspect the various interesting features of new construction work in progress at the New Print Works Department of the Mills.

The work comprises among other features the construction of seven new buildings occupying a territory 500 feet wide by 1500 feet long and consists of a Central Office Building; a Printing Building three stories in height and 720 feet long; a Central Building 250 feet wide and nearly 1000 feet long, mostly three stories in height; a Finishing Building 660 feet long, four stories in height; a Store House 370 feet long, seven stories in height; a Boiler House, Coal Pocket and Filter Building in one group, aggregating 780 feet in length.

The entire construction is designed by Lockwood, Greene and Co. of Boston and is in the immediate charge of their superintendent, Mr. D. J. Andrews. The General Contractor for the foundation, brick and timber work is Mr. L. E. Locke of Lawrence, while the Aberthaw Construction Co. of Boston holds the contract for the reinforced concrete work.

The Coal Pocket, Boiler House and Filter Building will rest on a foundation of concrete piles. Many of these piles are in place but the work of driving is still under way and a good opportunity may be had for observing the methods employed in driving and placing these piles. They are of the Simplex type and are being placed by the New England Foundation Co. of Boston.

A concrete river wall is being constructed along the entire length of the work.

The Boiler House has a capacity for 42 horizontal boilers 84″ in diameter, 30 of which are now installed. There are two stacks 10′ in diameter and 250′ high. The building is of brick walls with concrete floors and roof. The floors are exceptionally heavy and irregular in construction, and are of beam and girder type.

The Coal Pocket will be entirely of concrete and will have a capacity of 10,000 tons. Only the foundations are in place at present.

In the basement of the Finishing Building a Settling Basin for use in connection with the Filtration System is now being in-

stalled, and the pipe line for supplying water to the plant is now being extended along the front of the property, including a 48″ Venturi meter, and beyond, the pipe line increases to a 54″ line, which will run across the property to the Filter Building, located between the Printing Building and the Boiler House.

The reinforced concrete work in progress possesses an unusual number of interesting features. In the Finishing Building the entire process of forming, reinforcing and pouring may be seen. The floors are of the mushroom type. Corrugated iron forms are used throughout for floor slabs in place of the usual wooden boards. Sheet metal column caps are also used, and a special kind of clip for yoking up the columns. Another interesting feature is the placing of the surface finish while the slab is still green. The concrete is distributed by means of cars and industrial track.

Perhaps the most interesting feature of all is the introduction of some of the principles of the so called scientific management, which has resulted according to officials of the Aberthaw Co. in a saving in cost of fifty per cent on many of the items. The Aberthaw Construction Co. has very kindly offered to arrange with its Superintendent, Mr. E. H. Temple to give a short talk to the members on the principles of application of the system, the detailed methods adopted, the cost results obtained and the cost of running the system.

In addition to the above features the methods of handling concrete stock, mixing and delivering will be found both interesting and instructive.

Altogether this work probably offers an opportunity for more varied study of engineering features than any piece of construction in this vicinity.

After completion the inspection of this work the special car will take the party directly to Haverhill, where an eight story reinforced concrete building is under construction for the Haverhill Building Trust.

This work is being executed by the Concrete Engineering Co. of Boston. The floor area is 16,000 sq. ft. and it is expected that all of the various operations will be under way simultaneously. Very rapid progress has been made on construction of this work. Ground was broken early in February and it is expected that the

entire completed building will be turned over to the owners by July 1.

A simple and very efficient concrete mixing and handling plant is in use on this job. The various classes of work that are expected to be under way include mixing and pouring; panel walls; setting window frames and sash; setting floor screeds and placing screed fill; furring and lathing for partitions; plastering same and finishing floors.

The Concrete Engineering Company has very kindly offered to furnish a light collation to the members before their return to Boston.

The return to Boston will be by train from Haverhill.

In case postponement is necesitated by unfavorable weather conditions, the programme will be carried out on the next succeeding fair day.

EXCURSION COMMITTEE.

APPLICATIONS FOR MEMBERSHIP.

[May 10, 1911.]

The following applications for admission to membership in the Society have been received and are now before the Board of Government for action.

The new By-Laws provide that the Board of Government shall consider these applications with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to examine this list of applicants and to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidate, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider these applications until the expiration of twenty (20) days.

Brown, Burtis Scott, Boston, Mass. (Age 29, b. North Andover, Mass.) Graduate, Worcester Polytechnic Institute, 1905, in Civil Engineering. From May, 1905 to Sept. 1906, with Eastern Bridge & Structural Co., as draftsman; Oct. to Dec., 1906, with General Fireproofing Co., Youngstown, Ohio and Boston; June, 1909 to date, consulting and structural engineer. Associate Member, American Society of Civil Engineers. Refers to Edward Hutchins, W. F. Kearns, L. C. Wason, F. O. Whitney and J. R. Worcester.

Durham, Henry Welles, Sandwich, Mass. (Age 36, b. Chicago, Ill.) Graduate, Columbia University, with degree of Civil Engineering, in 1895. From 1895–1898, with Rapid Transit Commission, N. Y., as draftsman and field assistant, also during 1896, with U. S. Geological Survey as field assistant; 1898–1900, with U. S. Nicarauga Canal Commission and U. S. Isthamian Canal Commission, as hydrographer; 1900–1904, with N. Y. Rapid Transit Commission, as assistant engineer; 1904–1907, with U. S. Isthamian Canal Commission, as resident engineer; 1907 to date, with Cape Cod Construction Co., as resident engineer in charge of preliminary surveys and subsequent construction of Cape Cod Canal. Refers to H. S. Adams, E. L. Corthell, R. K. Hale, F. M. Hodgdon, G. S. Rice and J. W. Rollins, Jr.

Keenan, Thomas Henry, Brighton, Mass. (Age 25, b. Boston, Mass.) Received education public schools of Boston and Boston Latin School. From 1905–1908, with Boston Transit Commission starting as messenger, and after two months transferred to field work as inspector of concrete mixing and assisting on lines and grades; April to June, 1908, with Charles River Basin Commission, as rodman and inspector of concrete mixing, and scow inspector; Oct., 1909, to date, with Boston Transit Commission, as inspector of concrete mixing and placing, and assisting on line and grade work on Sections 1 and 2, Beacon Hill Tunnel. Refers to E. S. Davis, W. W. Davis, G. D. Emerson, L. L. Street and W. O. Wellington.

Lewis, George Wallace, Waltham, Mass. (Age 22, b. Waltham, Mass.) Graduated from Harvard University, 1910, with degree of B. S. From June, 1910 to date, with Hugh Nawn Contracting Co., on general construction work. Refers to Hugh Nawn, H. U. Ransom, L. L. Street and W. O. Wellington.

Sherman, Edward Clayton, Brookline, Mass. (Age 34, b. Kingston, Mass.) Graduate, Massachusetts Institute of Technology in 1898. Two months with Massachusetts Topographical Survey as transitman; four months with U. S. Board of Engineers on Deep Waterways, as rodman; 1898–1899, in office of City Engineer, Boston, as draftsman; 1899–1902, transferred to work of Cambridge Bridge Commission, being pro-

moted to assistant engineer in 1902; 1903–1909 with Charles River Basin Commission, as assistant engineer and later as division engineer; 1909 to date, with Isthamian Canal Commission, as designing engineer. Refers to Dexter Brackett, F. H. Fay, J. N. Ferguson, J. L. Howard, C. T. Main, H. A. Miller, J. W. Rollins, Jr., F. P. Stearns and S. E, Tinkham.

EMPLOYMENT BUREAU.

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE.

55. Member. Graduate, Mass. Inst. of Technology, Civil Engineering. One year's experience drafting and designing reinforced concrete structures; four years' experience in charge of field party office force, surveys and construction of State highways and the design of steel work. Desires position as assistant resident engineer. Salary, $125 per month.

56. Graduate, University of Vermont, Civil Engineering. Has had three years' experience as hydrographer and draftsman. Desires hydro-electrical position. Salary about $125 per month.

57. Student, Mass. Inst. of Technology desires summer position as rodman for experience. Salary, $1 per day.

58. Has had fourteen years' experience as surveyor of lines and grades, twenty-two years' experience engineering and superintending underground construction, water construction, road and drain construction, engineering preliminary survey for electric railroad, inspecting sewer construction and engineering plans for electric power and water works. Desires position as inspector or engineer. Salary, $1000 per year.

59. Has had field work at Massachusetts Institute of Technology. Desires summer position as transitman or rodman. Salary from $10 to $15 per week.

60 Has had two years' experience in structural steel designing with bridge companies and is now an instructor in one of the leading technical institutes. Desires summer work.

61. Age 34. Graduate, Lawrence Scientific School, 1901. Three years' experience in railroad work; two and a half years assistant engineer on filtration work; two and a half years instructor in railroad work in a technical school; one year on N. Y. water supply; and a year's experience as designing engineer on reinforced concrete and general work.

MINUTES OF MEETINGS.

APRIL MEETING OF THE SOCIETY.

Boston, April 19, 1911. A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.45 o'clock P. M., President Charles T. Main in the chair. Sixty members and visitors present, including ladies.

It was voted to dispense with the reading of the records of the last meetings and to approve the same as printed in the April *Bulletin*.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named: —

Members: — Messrs. Charles M. Allen, Hiram B. Andrews, Bradford A. Gibson, Edwin C. Hayden, Arthur E. Hoxie, William D. Morrill and Edward F. Rockwood.

Juniors: — Messers. Kenneth P. Armstrong and Sidney S. von Loesecke.

Associate: — Mr. Orlando W. Norcross.

He also reported that the Board had elected Mr. Frederic I. Winslow, Librarian, and under authority conferred at the annual meeting, it had named the following special committees of the Society: —

On Excursions, Messrs. C. R. Gow, R. K. Hale, L. E. Moore, H. K. Higgins and J. B. Flaws.

On the Library, Messrs. F. I. Winslow, J. M. Siner, E. R. Olin, G. V. White and H. T. Stiff.

Joint Committee on Club House, Messrs. G. A. Kimball, L. S. Cowles and C. S. Clark.

On Publications and to represent the Society on the Board of Managers, Association of Engineering Societies: Messrs. S. E. Tinkham, Dexter Brackett, C. W. Sherman, G. A. Kimball, H. P. Eddy, A. T. Safford, J. R. Worcester and H. F. Bryant.

The following memoirs were presented and ordered printed in the *Journals:* Memoir of Louis E. Hawes, prepared by Messrs. G. M. Warren and Erastus Worthington. Memoir of Burton I. Drisko, prepared by L. L. Street.

Before introducing the speaker of the evening, President Main spoke in part as follows: —

"I regret that I was unable to attend the annual meeting of the Society and express my thanks for the honor which the Society has conferred upon me by electing me president for the coming year. I now take the first opportunity offered for so doing. I desire to say that I feel highly honored by the confidence which you have placed in me, and I pledge my best endeavors for the best interests of the Society.

"The Society is in excellent condition, in spite of the fact that there is a deficit in the current expense account, but this is not alarming, although it is probable that there will still be a deficit at the end of this year.

"The membership is large and steadily increasing, and each member should do what he can to induce other engineers to join the Society; but numbers alone will not make an efficient body; interest in its affairs and work in the preparation of papers of profit to the profession, are necessary to keep up the standard, and I trust that every member will do his share, even if he is not personally urged.

"The Board of Government has been faithful to its charge, and has the welfare of the Society at heart, but cannot alone make a success of the Society. I therefore urge every member to do his share on committee work, in the preparation of papers and the discussion of papers, and if he cannot do any of these things, to help keep up the interest and enthusiasm by attending the meetings. A large meeting is always better than one slimly attended. Let us therefore, do whatever is in our power to make this not only the oldest engineering society, but the best engineering society in the country."

The President then presented Mr. Edwin J. Beugler, who gave a very interesting talk on "Some By-ways in Turkey" and had thrown on the screen a large number of views which he had recently taken during a trip through Turkey.

Adourned. S. E. Tinkham, *Secretary.*

LIST OF MEMBERS.

ADDITIONS.

CHARLES M. ALLEN . . Worcester Polytechnic, Worcester, Mass.
KENNETH P. ARMSTRONG, with Durkee, White & Towne, Springfield, Mass.
E. FARNUM ROCKWOOD . . . 201 Devonshire St., Boston, Mass,
ARTHUR E. HOXIE . . . . Civil Engineer, Laconia, N. H.
WILLIAM D. MORRILL . . . . 21 Arlington St., Lynn, Mass.
ORLANDO W. NORCROSS . . . 16 Clarendon St., Worcester, Mass.
SIDNEY S. von LOESCKE . . . . 37 Aldie St., Allston, Mass,

CHANGES OF ADDRESS.

J. R. BALDWIN . . . . . 12 Elm St., Woburn, Mass.
F. A. BAYLEY . . . . 111 South 9th Ave., Mt. Vernon, N. Y.
H. BISSELL . . . . . Altadena, Calif.
N. S. BROCK . . . . . Brown Station, N. Y.
W. A. CLAPP . . . . . 2038 Lincoln St., Berkeley, Calif.
G. W. CUTTING, Jr. . . . . Weston, Mass.
C. R. ELKINS . , , . . 172 Huntington Ave., Boston, Mass.
A. W. HEATH . . In care of Comeron Car Co., Beverley. Mass.
W. H. HERSCHEL, 137 West Swissvale Ave., Edgewood Park, Pittsburg, Pa.
C. R. MARSH . . . Supt. of Construction, U. S. P. O., Ionia, Mich,
H. U. RANSOM . . . . . 577 Broadway, Everett, Mass.
L. G. RICE . . . . . 17 Greenleaf St., Quincy, Mass.
W. C. OTIS . . . . . 106 Vernal St,, Everett, Mass.
R. A. VESPER . . . . . Supt. of Streets, Arlington, Mass.
E. P. WHITTEN . Bureau of Public Works, Prov, Div., Manila, P. I.

RESIGNATION.

J. ANSEL BROOKS . . . . . March 15, 1911.

LIBRARY NOTES.

RECENT ADDITIONS TO THE LIBRARY.

U. S Government Reports

Annual Report of Interstate Commerce Commission, 1910.

Annual Report of Coast and Geodetic Survey, 1910.

Flow of heat through furnace walls, Ray & Kreisinger.

Water Supply Papers. Nos. 212, 215, 220, 221, 223, 228, 229, 232, 234, 236, 237, 238, 240, 242, 246, 247, 251, 253, 254, 255, 262, 264, 270.

City and Town Reports.

Boston, Mass., List of Streets, 1910.

Boston, Mass., Report on Riverbank Subway, Kuichling & Bryant.

Holyoke, Mass., Annual report of Water Com's for 1910.

Madison. Wis., Annual report of City Eng'r & Water Dept., 1910.

Medford, Mass., Annual report of City Engineer for 1910.

Middletown, Conn., Annual report of Water Com'rs for 1910.

Philadelphia, Pa., Partial report on Sewage Disposal, 1910.

Springfield, Mass., Annual report of Water Com'rs, 1910.

Waltham, Mass., Annual report of City Eng's, 1910.

Worcester, Mass., Annual report of Supt. of Sewers, 1910.

Miscellaneous.

New York Elimination of surface freight R. R. tracks of N. Y. C. & H. R. R. R., Goodrich & Nichols.

National Irrigation Congress. Annual proceedings, 1910.

Railway Statistics of U. S. for 1910. Slason & Thompson.

New England, George French.

Commercial Economy in Steam Plants. R. H. Smith.

Gift of Mr. Clemens Herschel.

Review of Railroad History. W. H. Wilson.

Reminiscences of a Railroad Engineer. W. H. Wilson.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK.

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.— METROPOLITAN WATER AND SEWERAGE. — *Water Works.* — Work has been resumed on the new Weston Aqueduct supply main and the concrete lining is now being placed in the rock tunnel which was excavated last year under Waban Hill, between Grant Avenue and Montrose Street in Newton.

The construction of about 11,000 lin. ft. of 24-inch and 11,000 lin. ft. of 20-inch water main and a small pumping station is contemplated for supplying water to the town of Hyde Park and improving the southern extra high service distribution system.

In connection with the work of abolishing the grade crossing on the Boston & Maine Railroad at Webster Avenue, Somerville, the work of raising about 1300 lin. ft. of 48-inch water main is in progress.

At the power house at the Wachusett Dam in Clinton, foundations for the hydro-electric plant are nearing completion, and the work of setting up the machinery has been begun.

Harbor and Land Commissioners.

Work in connection with building the fish pier and Northern Avenue extension, also dredging near the Mosquito Fleet Yacht Club House, South Boston, continues about the same as reported last month.

Opposite the Leyland Line Pier, East Boston, dredging, to a depth of 35 feet at mean low water, is about to begin.

In Deacon's Pond Harbor, Falmouth, dredging is being done to a depth of 7 feet at mean low water.

At Oak Bluffs, Martha's Vineyard, Lake Anthony is being improved by dredging.

At the mouth of Ipswich River, stone is being delivered by vessels for the construction of a jetty about 400 feet in length.

At Lobster Cove, Annisquam, in the city of Gloucester, dredging is soon to begin for an anchorage basin and channel six feet in depth.

A contract has been let for clearing boulders from the channel of North River, Marshfield.

Bids have been asked for dredging a channel and anchorage basin in Cohasset Harbor, to a depth of six feet at mean low water; also a stone jetty at Scorton Harbor, East Sandwich.

Masssachusetts Highway Commission: — 1. Completion of concrete sea wall, granolithic curb and walk, and bituminous macadam road across the Causeway at Marblehead, for which an appropriation of $50,000.00 was made in 1910.

2. Construction of bituminous macadam road by the modified Gladwell method, in the town of Wilmington, from the Woburn line northerly. The bituminous material in this road is being applied in layers, so that it will penetrate both upward and downward in the upper course of stone.

Metropolitan Park Commission:—*Lynn Fells Parkway.*— Surfacing and finishing from Tremont Street to Bellevue Avenue, Melrose.

Mystic River Reservation.—Dredging in the Mystic River between Main Street and Lower Mystic Lake, Medford, Somerville and Arlington.

Winthrop Parkway. — Surfacing and finishing from Eliot Circle to Leverett Avenue, Revere.

Charles River Reservation, Lower Basin.—Construction of public boat landings.

General repairs to roads.

Boston Transit Commission. — In Section 2 of the Beacon Hill Tunnel, which section is under Boston Common, the bell-mouth approach and the doubled arched roofed portion of the station are nearly completed. The earth core is being excavated and the invert is being built. Work is also progressing under the Park Street station of the Tremont Street subway, where the old structure requires supporting while the new construction is going in. About two-thirds of the concrete invert and floor of the old structure has been removed and replaced by heavy steel beams and concrete, forming the roof of the new structure. Tremont Street at the junction of Winter Street has been bridged over and work is now going on underneath.

Coleman Brothers are the contractors.

Boston Elevated Railway Company.— Sullivan Square Changes.— Steel structure erected and track work now under way for the proposed changed at the Sullivan Sq. Terminal.

East Cambridge Extension.— Elevated steel structure erected on Causeway Street as far as Lowell Street. Ties and track work started on a portion of the structure on private land. Plant about to be erected for the construction of the concrete track floor and platforms for the North Station and main line.

Charles River Bridge.— Structure westerly of the main ship lock 80 per cent completed. On the Boston side the arch rings for both spans have been completed, a portion of pier 1 and the floor system on span 2.

East Cambridge, Lechmere Sq. Incline. About 40 per cent completed. Buildings are being removed in order to complete the incline as far as Dailey Alley. Erection of steel structure from the Charles River Bridge to the Lechmere Sq. Incline to begin during the present month.

Cambridge Bridge and Beacon Hill Tunnel.—Buildings are about to be removed between Charles Street and the westerly

entrance of the Beacon Hill Tunnel preparatory to constructing the foundations.

Cambridge Main St. Subway.— Work begun on the Boylston Street Terminal Yard.

Watertown.—The Aberthaw Construction Co. are just starting a fourth building for the Hood Rubber Company on their new tract of land on Arsenal Street. The track shed and storage building is now completed, and there are some 80 ft. clear span concrete girders which are very interesting. H. F. Bryant is engineer for this work.

New Haven, Conn.— The Aberthaw Construction Co. is pouring the second floor of the storage building for the Winchester Repeating Arms Co. This is very heavy design as the building is to be used for ammunition storage. L. W. Robinson is the architect.

South Lawrence. At the Pacific Mills, the Aberthaw Construction Company is starting work on the large Bleachery building, this building is 994′ long by 250′ wide. They are pouring the first floor of the Finishing building and have completed the concrete work of the Print Works. L. E. Locke & Co., General Contractors. Lockwood, Greene & Co., Engineers.

Quincy, Mass.—The Fore River Shipbuilding Co., has the following new work in progress;—

Argentine Battleship Rivadavia.

U. S. Torpedo Boat Destroyers Walke & Henley.

U. S. A. Suction Dredge New Orleans.

Submarine Boats Skipjack & Sturgeon.

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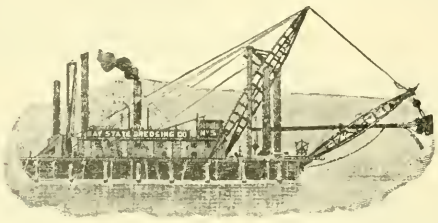

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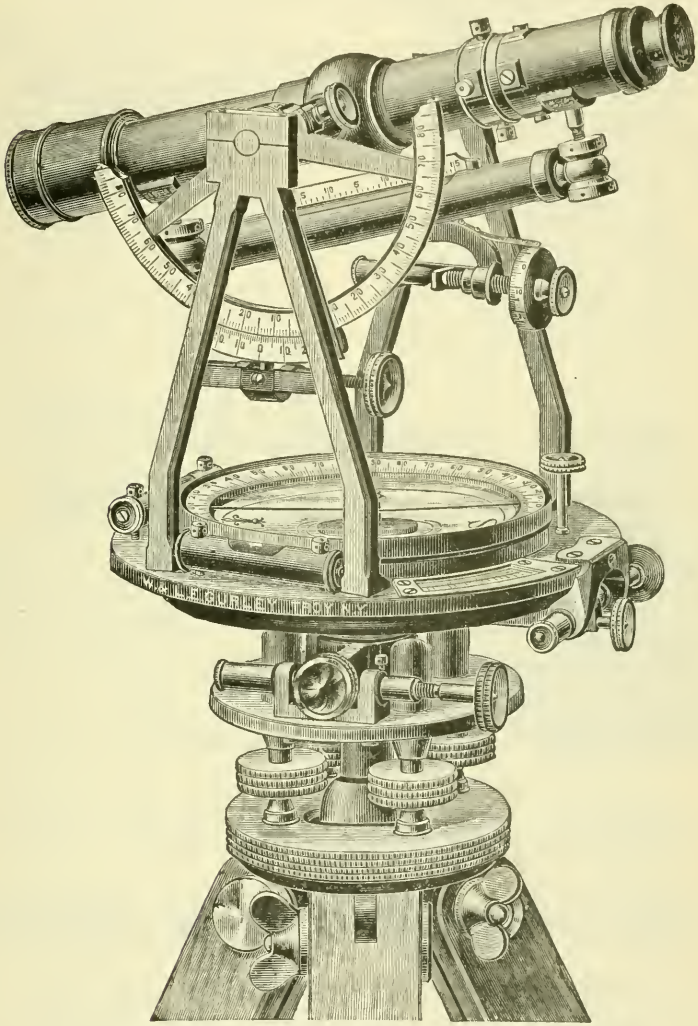

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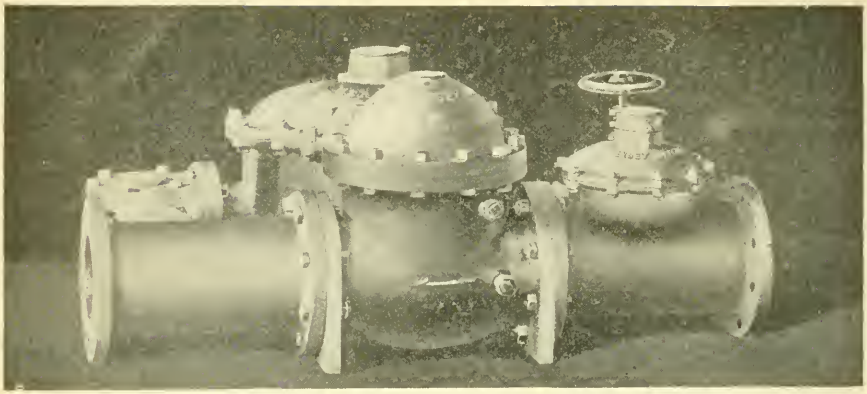

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MONTHLY BULLETIN.

NEW SERIES. JUNE, 1911 No. 53

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, June 21, 1911, at 2 o'clock P. M., at the

STERLING INN, STERLING, MASS.

Under authority of a vote of the Society passed at the last meeting, the Board of Government has called the June meeting, as announced above, to be held in connection with the excursion to Clinton.

S. E. TINKHAM, *Secretary.*

EXCURSION JUNE 21, 1911

The monthly excursion of the Society will be held on Wednesday, June 21, and will consist of an automobile trip to the various works comprising the Metropolitan Water Works.

A short stop will first be made at the Chestnut Hill Pumping Station where a new forty-million-gallon pumping engine has recently been installed.

A second stop will be made at the intersection of Commonwealth and Grant Avenues, where contract work is in progress on a new aqueduct being constructed in tunnel. It is expected that the placing of the concrete tunnel lining will be in progress and the methods used may be observed.

From this point the party will proceed through Weston, past the Weston Reservoir, to Lake Cochituate and thence past the several basins of the former Boston Water Supply, now a part of the Metropolitan system.

Following the general line of the Wachuset Aqueduct from this point, the route will lie through Marlboro to Northboro, where the Assabet Bridge carrying the Aqueduct over the Assabet River may be seen.

From Northboro the party will proceed to Clinton by way of Berlin and a stop will be made at the Wachuset Dam. At this place there are being installed at the present time four hydraulic turbines and four 1000 K. V. A. generators, which upon completion will utilize the power available from the water passing through the aqueduct.

After inspecting the work and the other interesting features of the dam, the party will continue on to Sterling where dinner will be served at The Sterling Inn.

The return trip can be made by a variety of routes, subject to the wishes of the several owners of cars and their occupants.

The total expense per member for the trip including dinner cannot be accurately determined in advance but will not exceed $5.00 and will probably not be less than $4.00.

Members intending to participate, who have not already done so should notify the Secretary of the Excursion Committee, Mr. R. K. Hale, No. 85 Water Street, Boston, so that provision will be made for them.

Members will assemble in Copley Square, at 8.30 A. M., so that assignments may be made to the several automobiles in time for starting which will be promptly at 9.00.

It is believed that ample time has been allowed for the trip to permit only moderate speed throughout, thus making possible greater comfort for the participants and giving a better opportunity for sight-seeing.

EXCURSION COMMITTEE.

APPLICATIONS FOR MEMBERSHIP.

[June 14, 1911.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Robinson, Byron Adams, Bellows Falls, Vt. (Age 35, b. Lebanon, N. H.) Student at University of Vermont, 1895-1896. During years 1899 and 1900 on engineering corps, B. F. & S. R. St. Ry.; Oct., 1900, to July, 1903, with American Bridge Co.; July, 1903, to Jan., 1904 chief of party for D. & H. R. R. on reconstruction on line from Plattsburgh to Lake Placid, N. Y.; from 1904 to date in general engineering with office at Bellows Falls; 1904 built dam at Bellows Falls; 1905 built dam, reservoir and filter at Essex Junction, Vt.; 1906 water power development on Connecticut River for Bellows Falls Canal Co. and on Saxtons River for Fall Mt. Electric Light and Power Co.; 1907 investigating mining property at Panama, and on separation of grade at Williamstown, Mass., and rock excavation for Central Heating Plant, Univ. of Me., Orono; 1908 water power development on Williams River at Brockways Mills, Vt.; 1909 water power development at Saco, Me., and raising dam at Bellows Falls; 1910 gauging Connecticut and Cold Rivers and on sewer construction at Bellows Falls and Windsor, Vt. Refers to H. K. Barrows, C. B. Breed, E. A. W. Hammatt and G. V. White.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

MEN AVAILABLE.

57. Student, Mass. Inst. of Technology desires summer position as rodman for experience. Salary, $1 per day.

62. Age 21. Student, Tufts College. Three years' technical training in civil engineering. Two years' experience municipal and triangulation surveying, with some knowledge of highway construction. Desires summer work.

63. Age 21. Graduate, Maryland Agricultural College, Civil Engineering, 1910. Has had field work at Maryland College and Mass. Inst. of Technology. Desires summer work as transitman or rodman. Salary $50 to $75 per month.

64. Age 22. Graduate, Mechanics Arts High School. Three years' experience as draftsman. Desires position as rodman. Salary $15 per week.

65. Age 21. High School Graduate. Had some experience in railroad work as rodman also some experience as a draftsman. Desires position as draftsman. Salary about $100 per month.

66. Age 33. Graduate, Mass. Inst. of Technology Mining Engineering, 1904. Has been superintendent mining properties in Western United States and Mexico for the past five years, which included a large amount of mechanical and electrical construction. Desires position as superintendent of construction on any kind of engineering work. Salary $250 per month.

67. Age 20. Student, Mass. Inst. of Technology for the past two years and has had only field experience at school. Desires position as rodman.

68. Age 21. Student at Harvard College, candidate for S. B. degree. Desires position as rodman.

69. Age 21. Student, Mass. Inst. of Technology in Civil Engineering course for the past three years. Has had two summers' experience as rodman.

70. Age 23. Graduate, Mass. Inst. Technology, 1911, in Civil Engineering. Three summers' work with Metropolitan Park Commission as rodman, transitman and concrete inspector. Salary desired, minimum $60 per month.

MINUTES OF MEETING

MAY MEETING OF THE SOCIETY.

Boston, May 17, 1911. A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.45 o'clock P. M., President Charles T. Main in the chair. Eighty-seven members and visitors present.

It was voted to dispense with the reading of the records of the last meeting and to approve the same as printed in the May *Bulletin*.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:—

Members:—Messrs. William D. Hartshorne, Neal J. Holland, Charles A. Leary, Malcolm Rich and Charles M. Taylor.

Junior:—Mr. James J. Tobin.

The Secretary submitted the report of the committee. Messrs. C. E. A. Winslow and Harrison P. Eddy appointed to prepare a memoir of Leonard Parker Kinnicutt, a member of the Society. On motion it was voted to accept the memoir and print the same in the Journal of the Association of the Engineering Societies.

On motion duly made and seconded, it was voted that the date and place of the holding of regular meeting in June be left to the Board of Government.

On motion of Mr. Gow, the thanks of the Society were voted to the officials of the Pacific Mills, the Aberthaw Construction Co., and the Concrete Engineering Co., for courtesies extended to members of the Society on the occasion of the visit to Lawrence and Haverhill.

At 8.50 o'clock, on motion duly made and seconded, the Society adjourned.

S. E. Tinkham, *Secretary*.

At the conclusion of the regular meeting of the Society, a joint meeting was held in co-operation with the American Society of Mechanical Engineers and the Boston Section of the American Institute of Electrical Engineers, the programme of the evening being in charge of the latter organization.

A paper on the Electric Motor in the World's Work was presented by the author, Fred M. Kimball, Manager of the

Small Motor Department of the General Electric Company, West Lynn, Mass., in which he briefly described the development of the electric motor from the discovery of the fundamental principles early in the nineteenth century up to the present time. He exhibited a large number of lantern slides showing the very diversified application of the motor to various industries. On account of the character and length of the paper there was no discussion. The attendance was about 150.

LIST OF MEMBERS.

ADDITIONS.

HARTSHORNE, WM. D. .....40 Pleasant St., Methuen, Mass.
HAYDEN, EDWIN C. .....16 City Sq., Charlestown, Mass.
LEARY, CHARLES A. .....Town Engineer, Peabody, Mass.
RICH, MALCOLM .....P. O. Box 37, Gloucester, Mass.
TAYLOR, CHARLES M. .....363 North St., East Weymouth, Mass.

DEATH.

DUNNE, GEORGE C. .....Died May 23, 1911

CHANGES OF ADDRESS.

BARNES, T. H. .....17 Battery Pl., Rm. 1603, New York, N. Y.
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CALLAHAN, J. F., JR. ....Care of Board of Water Supply, Valhalla, N. Y.
DASHPER, F. C. .....Pee Dee, North Carolina
NEGUS, A. I. .....Special Box 2, Jacksonville, Fla.
MCCORKINDALE, R. I. .....Box 113, East Liberty Station, Pittsburg, Pa.
RICE, L. G. .....Box 1061, Beverly, Mass.
SOPER, G. A. .....17 Battery Pl., New York, N. Y.
SUTHERLAND, R. H. .....1 Fortesque Terrace, East Lynn, Mass.
TOOF, F. L. .....30 Almy St., Providence, R. I.
TIBBETTS, F. E. .....125 Liberty Ave., West Somerville, Mass.
TUCKER, H. F. .....Kendal Green, Mass.

LIBRARY NOTES.

Book Reviews.

The Principles of Scientific Management, by Frederick Winslow Taylor, pp. 144, 5½x9. Harper & Bros., New York. $1.50 net.

(Donated for Review.)

Some inkling of the contents of this book has already been heard by the public ear in the opposition expressed by organized labor or its leaders, and whether the ideas herein expressed are to inaugurate a revolution in methods of manual labor or only to start a violent discussion between employer and employee remains to be seen. The book is intended to show the great loss the country is suffering from inefficiency; that the remedy for this lies rather in systematic management than in any extraordinary man; and that such management is a true science.

Some of the charges brought against labor are not to the laborer's credit, that of "soldiering," as it is called here, being the most important.

The improvement made in adopting the methods defined in this work has a striking example in the case of the inspection of balls for bicycle bearings, where the hours worked were reduced from 10½ to 8½, with an increased output per person, and in another case where thirty-five girls performed the work formerly done by 120, and with far greater accuracy.

A most interesting account is related as to the method employed in selecting men to prove the writer's belief that certain pig iron handlers are capable of moving 47 tons instead of 12½ tons per day. Among the men at work was a Dutchman named Schmidt, who used to trot a mile or so to his home after work, and who appeared to be thrifty. To him was made the personal appeal to become a "high-priced man" by making a record in labor, after this fashion:

"'Well, if you are a high-priced man, you will do exactly as this man tells you to-morrow, from morning till night. When he tells you to pick up a pig and walk, you pick it up and you walk, and when he tells you to sit down and rest, you sit down. You do that right straight through the day. And what's more, no back talk. Now a high-priced man does just what he's told to do, and no back talk. Do you under-

stand that? When this man tells you to walk, you walk; when he tells you to sit down, you sit down; and you don't talk back to him. Now you come on to work here to-morrow morning and I'll know before night whether you are really a high-priced man, or not.'

"Schmidt started to work, and all day long, and at regular intervals, was told by the man who stood over him with a watch: 'Now pick up a pig and walk. Now sit down and rest. Now walk—now rest,' etc. He worked when he was told to work, and rested when he was told to rest, and at half-past five in the afternoon had his 47½ tons loaded on the car. And he practically never failed to work at this pace and do the task that was set him during the three years that the writer was at Bethlehem. And throughout this time he averaged a little more than $1.85 per day, which was the ruling rate of wages at that time in Bethlehem. That is, he received 60 per cent. higher wages than were paid to other men who were not working on task work. One man after another was picked out and trained to handle pig iron at the rate of 47½ tons per day until all of the pig iron was handled at this rate, and the men were receiving 60 per cent. more wages than other workmen around them."

The ideas enumerated in this book are well worth the careful study of any one who handles men.

FREDERIC I. WINSLOW.

RECENT ADDITIONS TO THE LIBRARY.

State Reports

New York Annual Report of Public Service Commission for 1910, 3 vols.

Ohio Annual Report of State Board of Health.

City and Town Reports

Baltimore, Md., Annual Report of Water Engineer for 1910.

Beverly, Mass., Annual Report of Water Board for 1910.

Boston, Mass., Annual Report of Street Laying-Out Dept. for 1910.

Boston, Mass., Annual Report of Water Commissioner for 1909.

Burlington, Vt., Annual Report of Water Dept. for 1910.

Fitchburg, Mass., Annual Report of Water Dept. for 1910.

Haverhill, Mass., Annual Report of Water Commissioner for 1910.

Lawrence, Mass., Annual Report of City Engineer for 1910.

Lawrence, Mass., Annual Report of Water Board for 1910.

Medford, Mass., Annual Report of Water and Sewer Commissioners for 1910.

Metropolitan Park Commission Annual Report for 1910.

And 200 miscellaneous town reports, the gift of Mr. Wm. S. Johnson.

Miscellaneous

Theory of Electrolytic Dissociation. Harry C. Jones.

Principles of Scientific Management. Frederick W. Taylor.

Water Power Engineering. Daniel W. Mead.

Oblique Bridges. Geo. Watson Breck.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK.

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

Boston Transit Commission - Section 2 of the Beacon Hill Tunnel, which section is under Boston Common, is nearing completion except for the part under Tremont Street and under the easterly half of the old Park-Street Subway. Other than this there remains to be done the building of the platforms and the interior finish of the station. Tremont Street at the junction of Winter Street has been bridged over and work is now going on underneath. Coleman Brothers are the contractors.

Cape Cod Canal - Hydraulic dredging has been resumed in the eastern heading near Sagamore, making a channel of sufficient depth for flotation of the hydraulic dredge, General Mackenzie, behind which two dipper dredges are cleaning the channel to full depth.

Breakwater work has been recommenced for the season and it is expected that by the end of the summer a large part of this construction will be in place.

The canal is nearly completed for two miles westward from the Sandwich mouth.

In the Buzzards Bay channel four dredges are at work deepening the previously excavated channel and making a pilot cut into the mouth of the Monument River. One hydraulic dredge is working near the railroad bridge at Buzzards Bay and another will shortly be placed there.

Track laying is under way for the reconstruction of the Woods Hole Branch over the new drawbridge, and it is expected to put this into operation shortly, permitting the removal of the present pile crossing at Buzzards Bay.

The new highway bridge at Bourne will be finished by the end of the month when the work of reconstructing the New Bedford and Onset St. Ry. Co's. tracks over this bridge will be commenced, and it is expected by the first of July to be able to place this crossing into operation and abandon the Shore Road highway bridge.

The work of reconstruction of the Main Line of the R. R. between Buzzards Bay and Bourne is proceeding rapidly and will be completed during this summer.

The removal of part of the summit cut by dry excavation is being commenced and a steam shovel plant is contemplated in the near future, to be operated between Bournedale and Sagamore.

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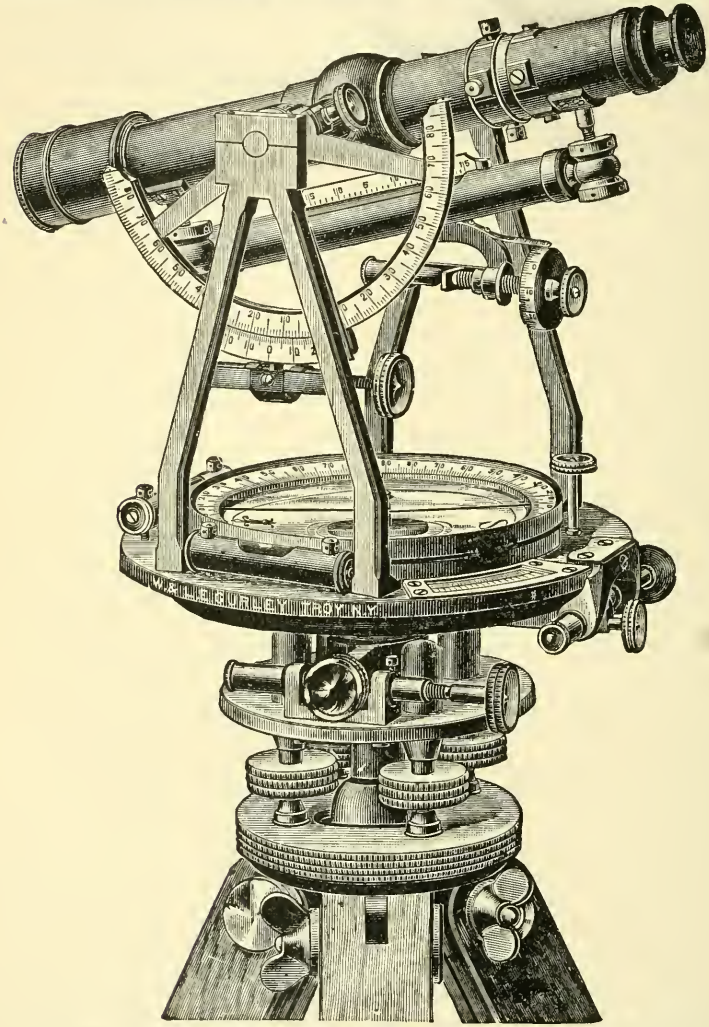

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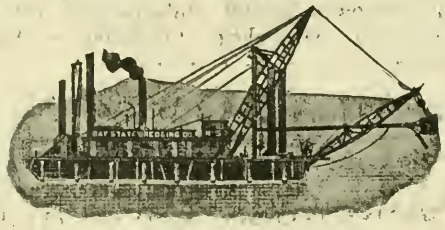

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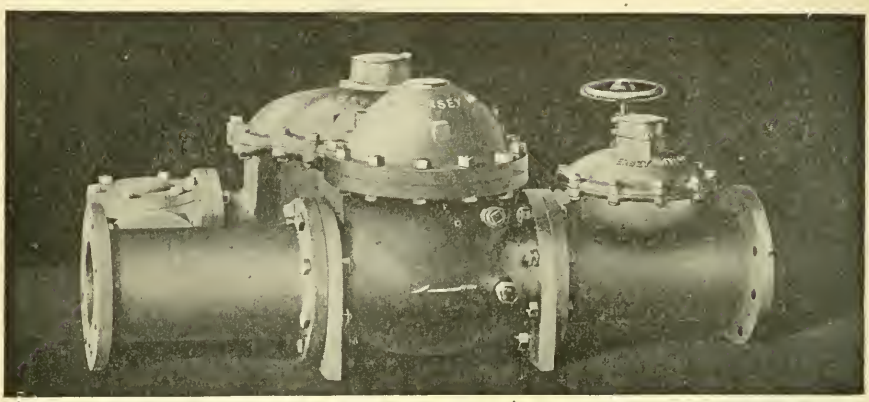

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ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. SEPTEMBER, 1911 No. 54

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, September 20, 1911, at 7.30 P. M., in CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Mr. T. Howard Barnes will read a short paper on "Pile Protection."

Mr. Barnes will also give an informal talk on "Guatemala and Her People from a Wayfarer's Point of View."

The talk will be illustrated by lantern slides.

A cordial invitation is extended to ladies to be present at this meeting.

S. E. TINKHAM, *Secretary.*

EXCURSION SEPTEMBER 20, 1911

On Wednesday afternoon, September 20, an excursion has been arranged to the Watertown Arsenal. The particular features visited will be the materials testing laboratory including the department of metallography.

In the materials testing laboratory the machines to be seen are the 800,000 pound and the 100,000 pound Emery testing machines, the 1,000 pound cement testing machine, the repeated stress, and the ball-bearing machines. The geared parts of these machines are run by electric motors. The hydraulic accumulator used to supply the pressure for the two Emery machines is supplied by a triplex pump driven by a 20 horse-power electric motor.

The principal dimensions of the 800,000 pound testing machine are:

Diameter of straining cylinder	20 ins.
Diameter of piston rod	10 "
Stroke of piston	24 "
Diameter of main screws	8 1/2 "
Length of main screws	48 feet
Distance center to center of main screws	50 ins.
Height center line of machine from floor	47 "
Hydraulic pulling heads	
Openings of jaws	
width	30 ins.
height	6 "
depth	16 "

The accumulator carries three weights averaging 26,300 pounds, each carried by rams of 5 1/2 and 10 inches in diameter, one ram working within the other. The machine is delicate enough to strain pieces through distances measured in ten-thousandths of an inch. The laboratory is in charge of Mr. H. L. Whittemore, Engineer of tests.

The Leitz-Wetzlar microscope, used in connection with the metallographic work, for inspecting or photographing prepared metal specimens will be open to inspection, and arrangements will be made to show some of these specimens. This department of the work is in charge of Prof. Fay of the Institute of Technology.

The party will leave Boston on the 2.30 P. M. train of the Boston & Albany from the South Station, each individual buying his own ticket to Faneuil. Those desiring to do so may reach the Arsenal by a car for Waltham via Faneuil from Park Street. The party should arrive at the gate on the Charles River side at about 2.55.

EXCURSION COMMITTEE.

OCTOBER MEETING OF THE SOCIETY

On October 18, 1911, a joint meeting will be held, conducted by this Society with the co-operation of the American Society of Mechanical Engineers and the American Institute of Electrical Engineers.

Mr. Fred A. Wallace will read a paper entitled "Power System of the Pacific Mills, Methods and Rules for, and Cost of, Operation." The paper will be illustrated by lantern slides.

APPLICATIONS FOR MEMBERSHIP

[September 13, 1911.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Beard, Cornelius, Boston, Mass. (Age 25, b. Boston, Mass.) Entered Harvard in 1905, Division of Engineering in Civil Course, and in fall of 1909 re-entered Harvard, completing work for S. B. degree in spring of 1910. In fall of 1910, entered Harvard School of Applied Science, to do advanced work, and to assist in Steam Engineering and Resistance of Materials. From June, 1903, to Oct., 1905, timekeeper with F. A. Snow, contractor; summer of 1907, as inspector of underground construction with Boston Edison Co.; spring of 1908, in Oregon for J. G. White & Co., on 30,000 horse-power development of Snake River; summer of 1910, at Ft. Riley, Kas., for War Dept. as Civil Engi-

neer and Supt. of Construction, on buildings, sewers, waterworks, and roads, and since August 1st, with Wells Bros. Co., of N. Y., contractors for the Peter Bent Brigham Hospital as Assistant Supt. Refers to H. K. Alden, I. N. Hollis, L. J. Johnson, G. G. Shedd, F. A. Snow, H. F. Tucker.

Chamberlin, George Edward, Boston, Mass. (Age 22, b. Norwich, Vt.) Graduate, Manchester High School 1906, Dartmouth College 1910, and post graduate course in the Thayer School of Civil Engineering 1911. Summer of 1906, 1907, 1908, foreman, with some drafting and survey work, for the Head Dowst Co., General Contractors, Manchester, N. H., 1909-1910, draftsman on mill work connected with the construction of the Coolidge Mill Amoskeag M'f'g. Co., Manchester, N. H. From 1907 to 1911, has done considerable work while attending college, surveying on highway construction for the New Hampshire Highway Commission, and surveying for several law suits, drafting work for Dartmouth College Dept. of Building, and on plans for several buildings for private parties. At present employed as draftsman for Stone & Webster Engineering Corporation. Refers to H. W. Fitts, W. N. Patten, J. P. Snow, D. M. Wood, F. J. Wood.

Campbell, Charles A., West Roxbury, Mass. (Age 22, b. Roxbury, Mass.) Graduate, Dorchester High School, 1908. Has taken course in Structures at Franklin Union, 1910-1911. From July, 1908, to Jan., 1910, draftsman for the Fore River Shipbuilding Co.; and from Jan., 1910, to present date, structural draftsman for the Boston Elevated Railway. Refers to A. F. Brown, L. S. Cowles, H. C. Hartwell, E. M. Moses, E. R. Olin, Daniel Scouler.

Jonsberg, Frank Frederick, Newtonville, Mass. (Age 39, b. Boston, Mass.) Received public school education, with four years' private tuition in architecture and mathematics. Worked three years in the office of Mr. Willard T. Sears; practiced architecture the following four years, and in 1903 entered the firm of H. A. Bellamy & Co.; now president of the F. F. Jonsberg Co., successors to H. A. Bellamy Co. This company has confined itself practically to constructional engineering work, and has built a score of central heating plants throughout New England, all of which has been under his personal supervision; it has also done a great deal of work for the Edison Co. of Boston, and the N. E. Tel. & Tel. Co. Refers to W. M. Bailey, F. A. Barbour, F. R. Charnock, R. E. Curtis, C. H. Gannett, C. J. Hogue.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE.

61. Age 34. Graduate, Lawrence Scientific School, 1901. Three years' experience in railroad work; two and a half years assistant engineer on filtration work; two and a half years instructor in railroad work in a technical school; one year on N. Y. water supply; and a year's experience as designing engineer on reinforced concrete and general work.

71. Age 34. Thirteen years with the Link Belt Co. of Philadelphia, for six of which years was in charge of Sales in South Atlantic States; one year was manager of the Artificial Wood Co. Member of A. S. M. E. Desires position with manufacturing concern. Salary, $2,500 per year.

74. Age 24. Nine years' experience in municipal work. Desires position as transitman. Salary, $3.00 per day.

75. Age 21. No experience; desires position as rodman.

76. Age 19. Eight months' experience in municipal work.

77. Age 26. One year at Mass. Inst. of Technology; five years' municipal experience, including drafting and designing; two years' experience on construction of buildings, water, electric and sewerage systems for a large private estate; has had experience in inspecting the laying of water pipe. Salary, not less than $33 per week.

MINUTES OF MEETING

JUNE MEETING OF THE SOCIETY

STERLING, MASS., June 21, 1911.—A regular meeting of the Boston Society of Civil Engineers was held at the Sterling Inn, Sterling, Mass., at the close of the dinner served in connection with the excursion to the various works of the Metropolitan Water Works, and was called to order by the President, Charles T. Main, at 3.15 o'clock P. M. Thirty-five members and visitors present.

It was voted to dispense with the reading of the record of the last meeting and to approve the same as printed in the June *Bulletin*.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:

Members:—Messrs. Burtis S. Brown, Henry W. Durham and Edward C. Sherman.

Associates:—Messrs. Thomas H. Keenan and John M. Keyes.

Junior:—Mr. George W. Lewis.

No further business coming before the Society, on motion duly made and seconded, at 3.19 o'clock it was voted to adjourn.

S. E. TINKHAM, *Secretary.*

LIST OF MEMBERS.

ADDITIONS.

BROWN, BURTIS S. .....88 Broad St., Rm. 920, Boston, Mass.
DURHAM, HENRY W. .....Sandwich, Mass.
HOLLAND, NEAL J. .....100 Summer St., Boston, Mass.
KEENAN, THOMAS H. .....25 Henshaw St., Brighton, Mass.
KEYES, JOHN M. .....Concord, Mass.
LEWIS, GEORGE W. .....Waltham, Mass.
SHERMAN, EDWARD C. .....6 Beacon St., Boston, Mass.

CHANGES OF ADDRESS.

BARNARD, T. O. .....Second Cliff, Scituate, Mass.
BESSEY, R. F. ...c|o Div. Engr., Corozal, Canal Zone, Isthmus of Panama
CORTHELL, A. B. ..Chief Engr., B. & M. R. R., No. Station, Boston, Mass.
CUMMINGS, W. W.....Hanover, N. H.
CUNTZ, W. C. .....90 West St., New York, N. Y.
GREGORY, J. H. .....170 Broadway, New York
HAZELUM, T. R. .....c|o United Fruit Co., Puerto Barrios, Guatemalo
HERSCHEL, W. H., Ass't. Prof. of Mechanical Engineering, Univ. of Maine, Orono, Me.
MANN, J. L., Fairscaril del Notre, Dept. Public Works, Santo Domingo, Dominican Republic, W. I.
MATTICE, A. M. .....157 Fargo Ave., Buffalo, N. Y.
PARLIN, R. W.,.....116 West Washington St., Hagerstown, Md.
PRATT, H. B. .....750 Lexington St., Waltham, Mass.
SHAW, W. T. .....Greencastle, Franklin Co., Pa.
SNOW, J. P. .....18 Tremont St., Rm. 1120, Boston, Mass.
TAYLOR, E. A., Supt. of Construction, Water Board, 186 Ford St., Portland, Oregon
TUCKER, J. I. ....Assoc. Prof. C. E., Univ. of Oklahoma, Norman, Okla.
WHITMAN, R. W., U. S. Naval Station, Guantanamo, Cuba, via Postmaster, New York

Willard, E. C., Assistant Engr., with H. P. Gillette, Hotel Sehome, Bellingham, Wash.

LIBRARY NOTES

Recent Additions to the Library.

U. S. Government Reports

War Department, Annual Report of Chief of Engineers, 1910.

Escape of Gas from Coal. Porter and Ovitz.

Sampling of Coal in the Mine. J. A. Holmes.

Furnace Gases, Sampling and Analysis. Frazer and Hoffman.

Briquetting Tests of Lignite. C. L. Wright.

Cotton Production.

Dust Prevention and Road Preservation.

Oxacetylene Welds in Steel. H. L. Whittemore.

Specifications for Fuel Oil.

State Reports

Rhode Island Dams and Reservoirs, Annual Report of Commissioner, 1910.

Maine, Board of Health, Report for four years, 1906-1909.

Pennsylvania, R. R. Commissioner's Annual Report for 1910.

City and Town Reports

Albany, N. Y., Annual Report of Bureau of Water for 1910.

Bangor, Me., Annual Report of Water Board for 1910.

Brockton, Mass., Annual Report of Sewerage Commissioner for 1910.

Clinton, Mass., Annual Report of Water Commissioner for 1910.

Erie, Pa., Annual Report of Water Works Commissioner for 1910.

Lewiston, Me., Annual Report of Water Board Commissioner for 1910.

Lynn, Mass., Annual Report of Water Board Commissioner for 1910.

Manchester, N. H., Annual Report of Water Commissioners for 1910.

Metropolitan Water Board, Boston, etc., Annual Report for 1910.

New Bedford, Mass., Special Sewerage Report. Metcalf and Eddy.

Newton, Mass., Annual Report of City Engineer for 1910.

Northampton, Mass., Annual City Reports for 1910.

Northampton, Mass., Annual Report of Water Commissioners for 1910.

Salem, Mass., Annual Report of Water Board for 1910.

Salt Lake City, Utah, Annual City Report for 1910.

Somerville, Mass., Annual City Report for 1910.

Springfield, Mass., Annual Report of City Engineer for 1910.

St. Louis, Mo., Annual Report of Water Commissioners for 1910.

Taunton, Mass., Annual Report of Water Board for 1910.

Wellesley, Mass., Annual Report of Water Board for 1910.

Woburn, Mass., Annual Report of Water Dept. for 1910.

Woonsocket, R. I., Annual Report of Water Commissioners for 1910.

Worcester, Mass., Annual Report of Supt. of Sewers for 1910.

Worcester, Mass., Annual Report of City Engineer for 1910.

Miscellaneous

History of Bridges. H. G. Tyrell.

Railway Library. Slason Thompson.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts. — METROPOLITAN PARK COMMISSION.—*Mystic River Reservation.* Dredging in the Mystic River.

Charles River Reservation, Lower Basin.—Construction of granolithic walks, curbs and gutters.

General road repairs and tar and oil treatments.

HARBOR AND LAND COMMISSION.—Work on the construction of a pier for the fish industry, off Northern Avenue at South Boston Flats, continues in its various details. Considerable wall has been built above water.

In Cohasset Harbor dredging has been done sufficient to make an entrance channel 90 feet wide and 6 feet deep at mean low water. More dredging is being done to increase the area of anchorage basins with the same depth.

In North River, Marshfield, boulders are being removed to give a clear channel, a diver is employed and considerable blasting done.

In Manchester Harbor, dredging is being done to a depth of 6 feet at mean low water to widen the channel and form an anchorage basin.

Boston Transit Commission.—Section 2 of the Beacon Hill Tunnel, which section is under Boston Common, is now finished except to complete the construction of some of the stairways and granolithic platforms and to cover the interior walls and ceiling of the station with cement plaster or glazed tile.

Boston Elevated Railway Company. — ELEVATED AND SUBWAY CONSTRUCTION.—FOREST HILLS STATION.—An additional stairway has been provided between the south exit gallery and surface level. A suspended waiting booth is being constructed for the use of those transferring to the south-bound surface cars.

Green St. Station.—The main elevated structure which was designed at this point to carry the elevated trains only, has been reinforced for the additional station loads that it will later receive. The conract for the steel and ornamental iron work for the station proper has been let and the erection (by the Railway Company) should begin at an early date.

Egleston Sq. Station.—The platform of this station will be extended to accommodate the operation of 8-car trains.

Dudley St. Station.—An additional waiting room is being built near the south-bound elevated platform for the use of patrons waiting for Forest Hills trains.

Sullivan Sq. Station.—The extensive alterations at this station are well under way, the elevated trains are now running over the new location. The remaining work consists in general of

(*a*) Changes in terminal platform on west side, including extension of platform south of present building, and completion of new elevated (surface car) loop.

(*b*) New south-bound elevated platform (west of present building), including bridge connections to terminal and trainmen's quarters.

(*c*) Covered extension of elevated platform and platforms on both sides of west surface incline (north of present building).

After the completion of these changes, the surface cars on the Somerville and Medford side of the station will use a loop similar to Dudley Street east loop; the in-bound and out-bound traffic will be separated and the present rush hour confusion practically obviated.

East Cambridge Extension.—The erection of the elevated steel structure has been completed from the old Boston Subway to Lechmere Square incline, East Cambridge. It is proposed to run the surface cars over this structure from Lechmere Square, East Cambridge, to the Subway, thus avoiding the troublesome delays now occasioned through Lowell and Brighton Streets.

Work on the new station in Causeway Street is progressing rapidly, and will present some very interesting cast concrete work.

Charles River Bridge.—The bridge is now practically completed, except the draw span where a two-leaf Strauss bascule bridge will be installed. Track work and electrical equipment have been started.

Lechmere Sq. Incline.—A reinforced concrete incline has been constructed, and surface car track connections are about to be made.

Beacon Hill Tunnel Approach.—This is an elevated steel structure about six hundred (600) feet in length, extending from the easterly end of the Cambridge Bridge to the Beacon Hill Tunnel and consisting of seven (7) through spans supported by cantilever cross girders placed upon reinforced concrete piers, three deck spans and a skew through span. About eight hundred (800) tons of steelwork have been used in the construction. The main girders and cross girders were fabricated by the Boston Bridge Works. The work of erection has been done by the Boston Elevated Railway Company. The steelwork is nearly all in place and the work is in progress upon the concrete floor system.

Cambridge Main St. Subway.—The work is being pushed as rapidly as possible upon the interior finish of the stations and the installation of the track. The in-bound track has been laid and surfaced from the Cambridge Bridge Incline to the Harvard Square Station and the work is in progress upon the out-bound track.

Eliot Sq. Carhouse.—Work is in progress upon the construction of the Machine Shop and Inspection Shed and the special trackwork is being installed.

Lawrence, Mass.—The Aberthaw Construction Company has more than two-thirds completed the reinforced concrete floor of the big central building for the Pacific Mills at their new print works department. This building is 250x900 feet and has probably the largest single floor of reinforced concrete in New England. The reinforced concrete columns are unusually high, and the handling of the concrete is interesting and the job is worth seeing.

Lowell, Mass.—The Aberthaw Construction Company has completed the excavation for the big beam and hide house for the American Hide and Leather Company. This is located in the rear of the tanning plant. It is to be constructed of reinforced concrete throughout and will be one of the best buildings in the country used for leather purposes. The vats, floors, and stairs are all of concrete. The hide house is to be of mushroom construction. The other buildings are of the ordinary beam and girder type.

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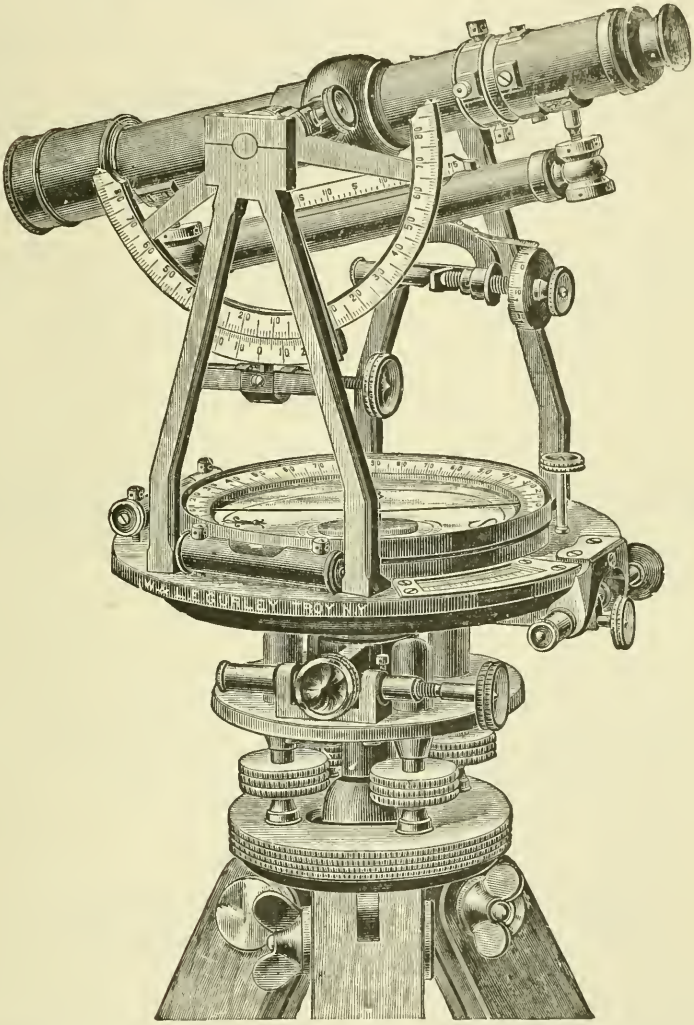

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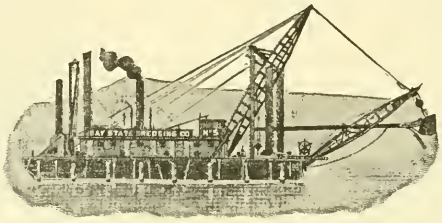

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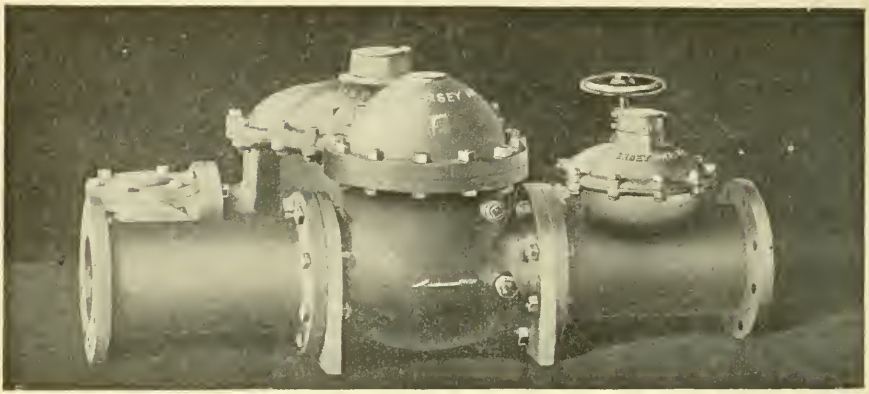

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NEW SERIES. OCTOBER, 1911 No. 55

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, October 18, 1911, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

At 8 o'clock a joint meeting will be held with the American Society of Mechanical Engineers and the Boston Section of the American Institute of Electrical Engineers, under the direction of this Society.

Mr. Fred A. Wallace will read a paper entitled "Power System of the Pacific Mills, Methods and Rules for, and Cost of, Operation."

The paper will be illustrated by lantern slides.

S. E. TINKHAM, *Secretary.*

NOVEMBER MEETING OF THE SOCIETY

On November 15, 1911, a joint meeting will be held with the American Institute of Electrical Engineers and the American Society of Mechanical Engineers, under the direction of the latter Society.

APPLICATIONS FOR MEMBERSHIP

[October 11, 1911.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Bacon, Walter Herbert, Dorchester, Mass. (Age 31, b. Chicopee, Mass.) Attended the High School at Hudson, Mass., and graduated from the Marblehead, Mass., Academy. In Sept., 1889, began work as a rodman for the City of Boston and has been in its employ since that date. For the last fifteen years has been in responsible charge of surveying work, specializing on street lines and grades in the West Roxbury and Brighton district of Boston. At present employed as a junior engineer in the Engineering Division of the Street Laying-Out Department of the City of Boston. Refers to E. S. Dorr, Channing Howard, C. B. Humphrey, A. L. Kidd, F. M. Miner and F. O. Whitney.

Herrick, Henry Augustus, Manchester, Mass. (Age 50, b. Brooklyn, N. Y.) From July, 1880, to Dec., 1881, draftsman with the Amoskeog Manufacturing Co.; from Dec., 1881, to Jan., 1883, draftsman with the Methuen Co.; from Jan., 1883, to May, 1883, with Operative Willimantic Linen Co.; from May, 1883, to Sept., 1883, draftsman with Victory Mills; from Sept., 1883, to Feb., 1884, transitman with B. H. T. & W. R. R.; from Feb., 1884, to Aug., 1884, draftsman with Head & Dowst, Contractors; from Aug., 1884, to Mar., 1885, draftsman with Lawrence Manufacturing Co.; from Mar., 1885, to May, 1885, draftsman with Head & Dowst; from May, 1885, to Jan., 1886, inspector, Willimantic Water Works; from Feb., 1886, to May, 1888, mill engineer, Amoskeog Manufacturing Co.; from May, 1888, to Aug., 1889, mill engineer for various jobs; Sept., 1889, Resident Engineer, Washington Water Power Co.; Jan., 1891, building dam and electric power station; from Feb., 1891, to Dec., 1891, Hydraulic Engineer, Boston & Montana C. C. & S. M. Co., Great Falls, Montana, designing and building two power stations at Block Eagle Falls, Montana; from Feb., 1892, to Oct., 1892, with F. P. Sheldon, Mill Engineer, Providence, R. I.; from Oct., 1892, to Feb., 1897, in independent practice, Hydraulic and Mill engineer, designer and superintendent of construction of plant of Howard & Bullough Am. Mch. Co., Pawtucket,

R. I.; from Feb., 1897, to Jan., 1907, with Dean & Main, Boston, and from Jan., 1907, to date, principal assistant with Charles T. Main, designing steam power, water power, and manufacturing plants, making examinations and reports on various hydro-electric projects, including many confidential investigations for bankers, of the feasibility, probable cost and earning power of hydro-electric projects submitted to them by promoters. Refers to L. N. Farnum, Desmond Fitzgerald, J. R. Freeman, F. M. Gunby, C. T. Main, J. F. Osborn, and J. R. Worcester.

Howland, Arthur, Boston, Mass. (Age 53, b. Boston.) Graduated from Grammar School and attended High School for six months. From 1875 to 1879 studied and worked at surveying in office of Thomas Doane, Civil Engineer of Charlestown; from 1879 to 1886 in the employ of the City of Boston during the open seasons in Surveying and Street Departments, as rodman; since 1886 has been connected with Surveying and Engineering Departments of City, as rodman, transitman and engineer, making drawings and giving grades for streets and buildings. At present time with City of Boston, Street Laying-Out Dept., Engineering Division; drawing and giving grades for streets and buildings. Refers to Joshua Atwood, 3rd, B. F. Bates, F. M. Miner, F. O. Whitney.

Uhl, William Frank, Boston, Mass. (Age 31, b. Sebewaing, Mich.) Graduate, Michigan Agricultural College, June, 1902, with degree of B. S. in M. E. Advance degree of C. E. in 1910 from same college. From June, 1902, to Nov., 1904, with Stillwell-Bierce & Smith-Vaile Co. (now Platt Iron Works) of Dayton, as designer and estimator of steam and hydraulic machinery; from Nov., 1904, to Sept., 1909, with Allis-Chalmers Co. of Milwaukee, Wis., as designer and estimator of hydraulic machinery, sales engineer, and engineer of the Hydraulic Turbine Dept.; from Sept., 1909, to date, with Charles T. Main, as Hydraulic Engineer. Refers to C. M. Allen, F. M. Gunby, Clemens Herschels, I. N. Hollis, J. F. Osborn and W. J. Sando.

Whiting, Mason Tuxbury, Longwood, Mass. (Age 27, b. Boston, Mass.) Graduated from Harvard, 1905, but did not take degree until 1906; received degree of B. S. in civil engineering from Mass. Inst. of Tech., 1908. During summers 1907 and 1908, transitman for J. S. White Co., at Brattleboro, Vt. Winter of 1908, acted as assistant in civil engineering at Inst. of Tech. In June, 1909, started work as surveyor for the Government on the R. I. Intra coastal canal, remained there for ten months. In March, 1910, started work in Charles T. Main's office, Boston, and is still there. Has worked considerably on water power development. Refers to F. M. Gunby, C. T. Main, J. F. Osborn and G. F. Swain.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for

furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

MEN AVAILABLE

78. Age 41. Graduate, Government School of Architecture and Construction, War Dept., Chatham, England. Sixteen years Government Inspector of works, England and Canada; appointed Inspector for City of Boston on Boston Arena; from 1909 to 1910, with Eastern Concrete Construction Co.; 1910, Construction Inspector on Reinforced Concrete and Structural Steel buildings at Manchester, N. H. Desires position as Resident Engineer or Inspector. Salary, $30.00 per week to start.

79. Age 33. Has had about ten years' experience on road construction, water works and sewerage and landscape engineering. Desires position as superintendent of Parks and Highways, will accept position with landscape engineer. Salary according to responsibility.

80. Age 22. Graduate, University of Maine, 1911, Civil Engineering. Has had summer work on Highway and Railroad surveys. Also experience in draughting railroad and highway bridges, and in concrete work on design and construction. Desires position as instrumentman or rodman or draughting work. Salary, $75 per month.

81. Age 34. Has had fifteen years' experience on surveys, sewer construction in tunnel and open-cut, maintenance studies and general office work, and draughting. Desires position as chief of party on construction or surveys. Salary, $4.00 per day.

82. Age 25. Three years, Mass. Inst. of Tech. Has had three years' experience in municipal and railroad engineering work. Would go anywhere. Desires position as chief of party on construction or survey. Salary, $4.00 per day.

83. Age 24. Attended Mass. Inst. of Tech., two years in the electrical engineering course. Has had some experience in drafting. Desires position as draftsman. Salary, $12 to $15 per week.

MINUTES OF MEETING

SEPTEMBER MEETING OF THE SOCIETY

Boston, Mass., September 20, 1911.—A regular meeting of the Boston Society of Civil Engineers was held at Chipman Hall, Tremont Temple, at 7.50 o'clock P. M. President Charles T. Main in the chair. Seventy-eight members and visitors present.

It was voted to dispense with the reading of the record of the June meeting and to approve the same as printed in the September *Bulletin*.

The Secretary reported for the Board of Government that it had elected Mr. Byron Adams Robinson a member of the Society.

The Secretary also reported that the Board of Government had appointed the following committee to recommend the award of the Desmond FitzGerald Medal for the best paper published by the Society during the year ending with the month of September, 1911, Messrs. Desmond FitzGerald, Harold K. Barrows and Chester J. Hogue.

The Secretary announced the death of Mr. George C. Dunne, an associate of the Society, whose death occurred on May 23, 1911, and by vote the President was requested to appoint a committee to prepare a memoir. The President appointed as that committee, Mr. Frank A. Barbour.

On motion of Mr. Gow, the thanks of the Society were voted to Lieut.-Col. C. B. Wheeler, Commanding Officer at the Watertown Arsenal; to Capt. Shinkel and to Mr. H. D. Whittemore, for courtesies extended to members of the Society during the excursion this afternoon.

Mr. T. Howard Barnes read short paper on "Pile Protection" which was illustrated by lantern slides.

Mr. J. W. Rollins described the condition of the foundation under one of the piers of the bridge at Fall River where the *teredo* had eaten the piles and grillage so badly that the pier had sunk and rendered the bridge unsafe. Mr. F. W. Hodgdon spoke of the work of the *teredo* and the *limnoria* in Boston Harbor and showed specimens of their work.

Mr. Barnes then gave an informal talk on "Guatemala and

Her People from a Wayfarer's Point of View" which he illustrated with a large number of lantern slides.

Adjourned.

S. E. TINKHAM, *Secretary.*

LIST OF MEMBERS

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ROBINSON, BYRON A. ..... Bellows Falls, Vt.
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LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

City and Town Reports

Chicago, Ill., Report on Electrolysis of Water Pipes by the Bureau of Efficiency.

Gloucester, Mass., Annual Report of Water Commissioners for 1910.

Miscellaneous

Plate Girder Design. Clarance W. Hudson.
Strength of Materials. H. E. Murdock.
Marine Transport of Petroleum. Geo. H. Little.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

United States Government.—NAVY YARD, BOSTON. Contracts for Improvements to Pier No. 1 and for construction of new wooden pier have been completed.

Naval Hospital at Chelsea is about 75% completed.

Work under way at the Navy Yard includes Paving, Railroad tracks, Dredging, Power Plant machinery and electric system extensions.

Contract will shortly be awarded for removal of Pier No. 9 and the construction of a new pier in substantially the same location.

Commonwealth of Massachusetts—METROPOLITAN WATER AND SEWERAGE BOARD.—*Water Works.* At the 76" pressure tunnel and pipe line in Newton, the rock tunnel is lined and the work of grouting will be completed about the middle of the month. The concrete jacket covering the outside of the 80" steel pipe has been completed. The work of pouring the mortar lining is in progress at the east end of the tunnel, near Montrose Street, and will be completed early in the month. At the west end of the tunnel, near the junction of Commonwealth and Grant Avenues, excavations are being refilled and top soil placed. Conditions at this point will be favorable during the early part of the month for inspecting the completed lining of the steel pipe.

The work which is in progress on the 24-inch high-service pipe line in Washington Street, near the Elevated Terminal at Forest Hills, and on the 20-inch extra high-service pipe lines in Hyde Park Avenue in Hyde Park and in Burley and Mansur Streets and Metropolitan Avenue in West Roxbury, will be substantially completed before the close of the month.

Plans are being prepared for the extra high-service pumping station to be constructed on Hyde Park, near the Boston-Hyde Park boundary line.

METROPOLITAN PARK COMMISSION.—*Alewife Brook Purification.* Channel excavation.

Charles River Reservation, Lower Basin. Construction of granolithic walks, curbs and gutters. Excavation and refilling tree-pits on embankment.

General road repairs and tar and oil treatments.

Harbor and Land Commissioners.—*South Boston Flats.* The work continues on the construction of pier No. 6 to be used for the fish industry.

Hough's Neck, Quincy. An anchorage basin about 300 feet long and about 250 feet wide is being dredged to a depth of 6 feet at mean low water, opposite the house of the Quincy Point Yacht Club.

Cohasset Harbor. In addition to the original work undertaken, dredging is being done in Bailey Creek to enable the fishermen and others in that vicinity to keep their boats near home and out of the main anchorage basin.

Old Harbor, South Boston. Dredging is soon to be resumed on the extension of the anchorage basin opposite the Mosquito Fleet Yacht Club.

Boston Transit Commission.—Section 2 of the Beacon Hill Tunnel, which section is under Boston Common, is now finished except to complete the construction of some of the stairways and granolithic platforms and to cover the interior walls of the station with enameled tile and the ceiling with white cement plaster.

City of Boston—Public Works Department.—*Highway Division, Paving Service.* Work being done by contract. South Boston. Ralston Street, Dorchester Avenue to Boston Street; and E. Fourth Street, P Street to Farragut Road.

City Proper.—Berkeley Street, Columbus Avenue to Providence Street; Central Street, Broad Street to Kilby Street; Haverhill Street, Haymarket Street to Causeway Street; Fayette Street, Ferdinand Street to Pleasant Street; and Bristol Street, at Albany Street.

Roxbury—Tremont Street, Northampton Street to Hammond Street; Bryant Street, Huntington Avenue to Ruggles Street; and Washington Street, Williams Street to Dudley Street.

West Roxbury.—Bradford Avenue, South Street to Centre Street, and Railroad Street, Willow Street to Corey Street.

Brighton.—Quint Avenue, Brighton Avenue to Glenville Avenue.

Dorchester.—Brinsley Street, Washington Street to Columbia Road; Harvard Avenue, Washington Street to Harvard Street; Thetford Avenue, Norfolk Street to Evans Street; Bay Street, Dorchester Avenue to N. Y., N. H. & H. R. R.; River Street, Mattapan Square to Hyde Park line; Geneva Avenue, Columbia Road to Bowdoin Street; Olney Street, at Geneva Avenue; Talbot Avenue, Blue Hill Avenue to Washington Street; Frost Avenue, Boutwell Street to Fairview Street; and Hancock Street, Bowdoin Street to Dorchester Avenue.

Sewer and Water Division, Sewer Service. Work being done by contract. Brighton. Hunnewell Avenue, Atkins Street to Newton line; and Burlingame Way, Montclair Avenue to 260 feet southwest.

West Roxbury.—Stony Brook, Sections 7 and 8.

Dorchester.—Harvard Street, Norton Street to Gilman Street; Talbot Avenue, Blue Hill Avenue to Washington Street, and on Johnston Road and Harvard Street. New Catch Basins on Freeport Street. Conley Street to 110 feet north.

Roxbury.—On Kent Street, Vernon Street to Roxbury Street, and on Watson Street, Camden Street to Northampton Street.

City Proper.—Byron Street, Brimmer Street to River Street.

Water Service. Work being done by contract. West Roxbury. New Mains on Wiggin Street and on Glade Avenue.

East Boston.—New Mains on Frankfort Street and on Lubec Street.

South Boston.—New Main on Dorchester Avenue and Fourth Street, between Second and Fourth Streets.

Dorchester.—New Main on Westmoreland Road.

City Proper.—New Main on Commercial Street.

Bridge and Ferry Division. Repairs to Draw Fender Pier at Dorchester Avenue bridge; to Warren bridge draw foundation; to Neponset bridge draw piers. Cleaning by sand blast and painting Cottage Farm bridge. Repairing wharf, North End Paving Yard.

the Old Colony Railroad in connection with the canal work is nearly completed and it is expected to have the Woods Hole Branch line in operation over the Buzzards Bay bridge within a few weeks, permitting the commencement of dredging past the

Cape Cod Canal.—Reconstruction of the relocated line of old railroad bridge.

Buzzards Bay Channel is more than half done and a continuous scow channel has been dredged from Wing's Neck Light to the mouth of the Monument River. The new highway bridge and approaches at Bourne will be completed and ready for traffic by the end of the month when the Shore Road bridge will be removed.

Steam shovels are engaged in the summit cut between Bourne and Sagamore removing as much dry excavation as possible in advance of dredging. Over two miles of canal westward from the Sandwich entrance is completed and the cut will be extended across the highway at Sagamore by the first of November when a temporary bridge will be installed at that point pending final arrangements for a highway crossing.

Breakwater is completed to its entire length and height with about two-thirds of the total amount of stone in place. About one mile of canal bank has been protected by the placing of riprap to prevent erosion.

Lowell, Mass.—The Aberthaw Construction Company is just starting the superstructure of the Tannery Building for the American Hide & Leather Co. This will be one of the finest tannery buildings in New England when completed. It will be fireproof throughout. Concrete vats are to be used. The construction will be designed to produce as sanitary a building as is possible to make. At the present time the vats are going into place, and the big retaining walls along the back are being poured. The Construction Company's layout of plant is interesting and shows about as economical handling of material from cars into place as can well be devised for that location.

Buffalo, N. Y.—Aberthaw Construction Company is building a large storage warehouse, 576′ x 102′ plan, 10 stories high

for the Larkin Company, and at Tonawanda, N. Y., a hard fibre mill for J. Spaulding & Sons Company of No. Rochester, N. H.

On all these jobs as at Lowell the corrugated iron is being used for forms in place of boards for the covering in under floors.

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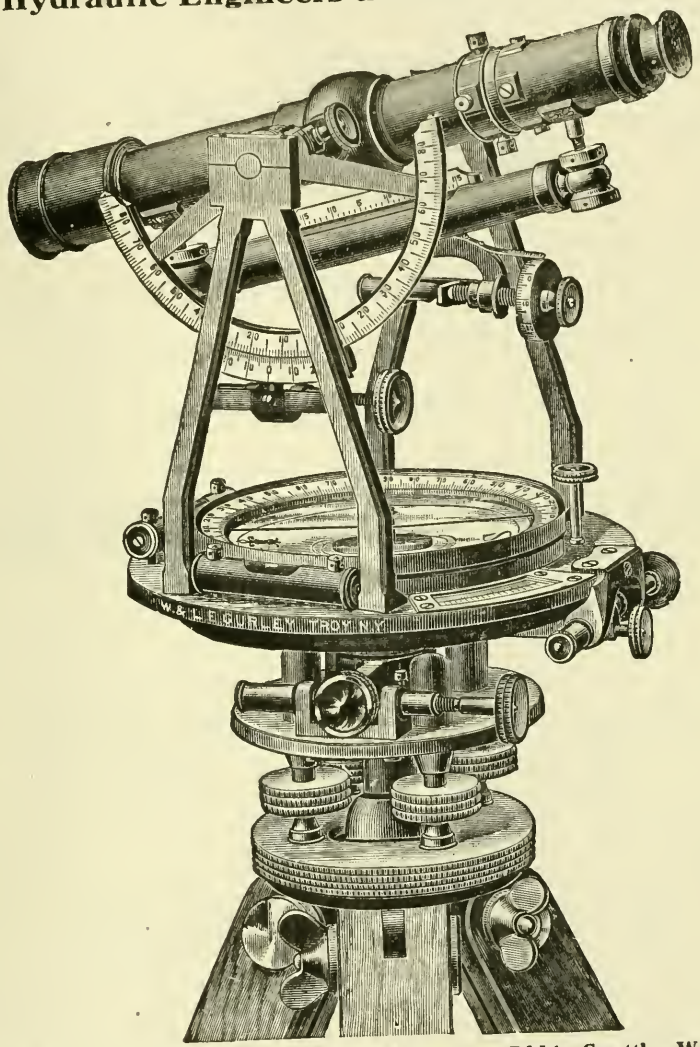

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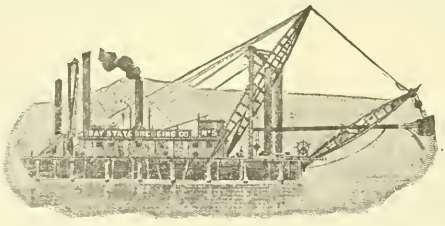

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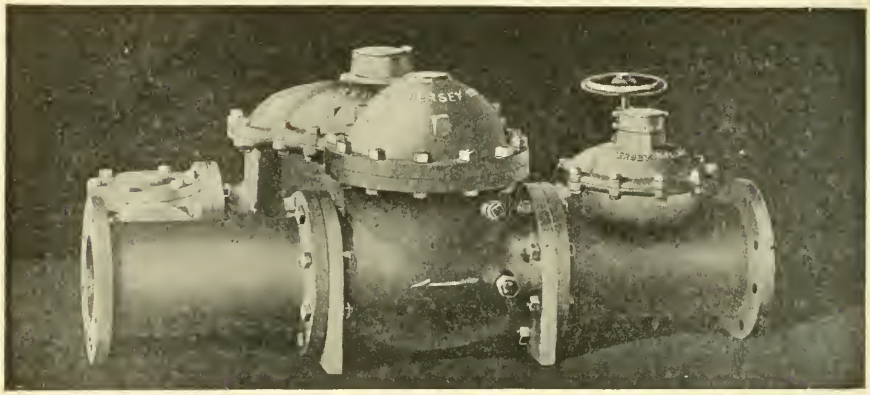

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MONTHLY BULLETIN.

NEW SERIES. NOVEMBER, 1911 No 56

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN

November 15, 1911. Regular meeting in Chipman Hall. Business meeting at 7.30 P. M. At 8 o'clock, joint meeting conducted by American Society of Mechanical Engineers. Paper on "Some Refractory Substitutes for Wood."

December 6, 1911. Meeting of the Sanitary Section.

December 20, 1911. Joint meeting conducted by the Boston Section, American Institute of Electrical Engineers.

Report of Committee on Endorsement of Recommendations of Boston Chamber of Commerce.

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, November 15, 1911, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Business of the Meeting:—To act upon a report of the Committee of the Society appointed at the last meeting to recommend action on the suggested endorsement of the report of the Committee on Fire Prevention of the Boston Chamber of Commerce. The report of the Committee is printed in this *Bulletin*.

At 8 o'clock a joint meeting will be held with the Boston Section of the American Institute of Electrical Engineers and the American Society of Mechanical Engineers, under the direction of the latter Society.

Prof. Charles L. Norton of the Massachusetts Institute of Technology will read a paper entitled "Some Refractory Substitutes for Wood." The paper will be illustrated by lantern slides.

S. E. Tinkham, *Secretary.*

DECEMBER MEETING OF THE SOCIETY

On December 20, 1911, a joint meeting will be held with the American Society of Mechanical Engineers and the Boston Section of the American Institute of Electrical Engineers under the direction of the latter Society. Mr. W. L. R. Emmet, of the General Electric Co., will read a paper on "Electric Propulsion of Ships." The paper will be illustrated by lantern slides.

DECEMBER MEETING OF THE SANITARY SECTION

The regular December meeting of the Sanitary Section will be held Wednesday evening, December 6, 1911, at the Boston City Club, in accordance with the usual custom. Dinner will be served at 6 o'clock, the expense being $1.25 per plate.

Following the dinner there will be a talk by Mr. Louis K. Rourke, Commissioner of Public Works of Boston, on "The Panama Canal," special reference being made to the sanitary work accomplished. His talk will be illustrated by lantern slides. Mr. Rourke's popularity is well known, and as he will come to the meeting with some new phases of the work on the Isthmus it will not be necessary to urge the members and friends of the Section to be present.

The general discussion of the evening will be on the subject, "The Sanitation of Contractor's Camps and The Patrol of Watersheds." It is hoped to have several other gentlemen present to aid in the discussion of this interesting subject. Full details will, however, be given in the notice

to be sent to the members in advance of the meeting.

Owing to unexpected duties it was necessary for the speaker scheduled for the October meeting to postpone his visit, and consequently the Executive Committee of the Section was obliged to cancel that meeting. An excellent program for the season has been blocked out, beginning with the December meeting and including the months of January, February, and March. Other plans are under way, which, it is hoped, will bear fruit at a later date.

FRANK A. MARSTON, *Clerk.*

APPLICATIONS FOR MEMBERSHIP

[November 8, 1911.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

BRYANT, WILLIAM ALLEN, Brookline, Mass. (Age 21, b. Brookline, Mass.) Has completed two years in civil engineering at the Massachusetts Institute of Technology. At present is pursuing studies of third year at Institute of Technology. At various intervals has served as rodman for Henry F. Bryant. Refers to H. F. Bryant, A. E. Burton, A. H. French, A. G. Robbins, David Sutton, R. H. Whiting.

LANPHEAR, ROY STUART, Plainfield, N. J. (Age 27, b. Worcester, Mass.) Graduated from the chemistry course, Worcester Polytechnic

Inst., 1906. The first year was employed as Chemist at the Worcester Sewage Purification Works; the second year had charge of laboratory and served as assistant to the Supt.; July, 1908, went to Plainfield, N. J., as the representative of Hering & Fuller, in charge of the sewage disposal plant; continued in their employ until Nov., 1910. Since that date has been Manager and Chemist, Sewage Disposal Plant, Plainfield, N. J. Refers to H. P. Eddy, A. L. Fales, G. W. Fuller, A. J. Gavett, G. A. Johnson, E. G. Manahan.

Skillin, Fred Burgess, Somerville, Mass. (Age 23, b. Boston, Mass.) Graduated from the Civil Engineering Course, Tufts College, 1911. At present is employed in the engineering department of the Boston & Maine Railroad. Refers to S. L. Connor, Howard Farwell, C. H. Restall, E. H. Rockwell, F. B. Sanborn, Samuel Schwarz.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE

84. Age 27. Graduate, Mass. Inst. of Tech., 1906, Sanitary Engineering. Has had six years' practical experience in the design and construction of water works and in dealing with problems relating to the quality and filtration of water supplies. Asst. Engr. with Hering & Fuller, N. Y. State Dept. of Health, and N. Y. Board of Water Supply. Desires position on the construction of water works or sewerage system or construction and operation of a filter plant. Salary according to opportunity for promotion.

85. Age 25. Graduate, Rennselaer Polytechnic Institute, 1909, Civil Engineering. Member, Canadian Society of Civil Engineers. Has had two years' experience with Canadian Pacific R. R. Construction Dept. of Montreal; nine months with Canadian Northern & Quebec & Lake St. John R. R. of Quebec; eleven months with Richardson & Hale of Boston. Salary, $20.00 weekly.

86. Age 29. Graduate, Mass. Inst. of Tech., 1905, mining and metallurgical course. Has had three months' experience mine examinations in Colorado, 1904; 1904 to 1905 with Lehigh Valley Coal Co. as mine surveyor; 1905 to 1907 real estate engineering; 1907 to 1911 mining engineer, doing building design and construction and road building. Desires position as civil or mining engineer with large contractor or firm. Salary, $150 per month.

87. Age 23. Has had about two years' experience in drawing and tracing on architectural work and bridge work. Desires position as draftsman. Salary, $40.00 per month.

88. Age 29. Graduate, University of Maine, Civil Engineering. Has had six months' experience in mill construction both in field and office; five years' experience in surveys for water power, storage, and property work, as chief of party, special experience in equipping and managing parties in camp and under adverse conditions. Position desired in any engineering work involving responsibility and experience. Hydraulic work preferred.

89. Age 26. Graduate, University of Maine, 1908, Civil Engineering. Has had six months' experience as inspector of concrete, and a year as rodman and transitman on sewerage work and building construction; about two weeks as transitman in the bridge dept. of the Erie Railroad, N. Y. Desires position as structural steel designer or in charge of construction in the field. Minimum salary, $90.00 per month.

90. Age 25. Graduate, Mass. Inst. of Tech., 1910, Civil Engineering. Was cement tester for City of Lowell for one summer; transitman and recorder for the City of Concord, N. H., on a survey for assessor's map; draftsman for Merrimack Manufacturing Co.; draftsman and transitman for T. G. Hasard, Jr.; boring inspector for Stone & Webster Engineering Corporation; driving wells at Nashua Manufacturing Co. Desires position in general engineering. Salary, $18.00 per week.

91. Age 30. Graduate, Dartmouth, 1909, C. E. Thayer School, 1911. Has had one summer's experience on railroad survey for Vermont Copper Mining Co., So. Strafford, Vt.; two months' work at electrical engineering for B. F. Sturte-

vant Co., Readville; Field Asst. for Bureau of Engineering Statistics under Prof. Swain; transitman for Harbor and Land Commission of Mass. under M. E. E. Peirce to close of season, 1911. Desires any position in field work. Salary, $75.00 a month.

REPORT OF COMMITTEE ON ENDORSEMENT OF REPORT OF CHAMBER OF COMMERCE

Under date of September, 1911, the Boston Chamber of Commerce issued a report from its Committee on Fire Prevention which it asks the Boston Society of Civil Engineers and the Boston Society of Architects to formally endorse.

Under our present Constitution this proposition must be treated in the same manner as an amendment to the Constitution. The Board of Government has, therefore, designated November 15, 1911, as the date of the regular meeting at which the proposed endorsement shall be discussed or amended, after which, if accepted by a majority vote of those present and voting, it will be submitted to the full membership for letter ballot, a two-thirds vote in favor being required for final adoption.

The Chamber of Commerce Committee on pages 7 and 8 of their report offer the following recommendations:

1. *To reduce the construction hazard:—*

(*a*) The enactment of city ordinances which shall prohibit the construction of any third class building within the city limits.

(*b*) The enactment of a law prohibiting the construction of any but fireproof buildings within the congested business district of the city.

(*c*) The passage of a law requiring all second or third class buildings now existing within the congested business district of the city to be equipped with sprinkler service, except that houses for habitation not used in any portion for any other purpose need not be so equipped, and that hotels, and lodging houses need be so equipped only in the basement, first story and public halls, dining rooms or assembly rooms.

2. *To prevent carelessness or deliberate mismanagement:—*

(*a*) The passage of a law creating a Fire Bureau empowered to examine into every fire and make a published report thereon, giving in detail the cause of the fire and locating the exact responsibility in much the same manner as the coroner's jury investigates a crime.

(*b*) The passage of a law regulating the issuing of fire insurance covering any building previous to approval by formal act of said Fire Bureau.

3. *To improve the efficiency of the fire-fighting systems:—*

(*a*) The installation of a high pressure fire service carried through the streets of the congested portion of the city.

(*b*) Doing away, as rapidly as conditions will permit, with the obsolete and cumbersome system of portable engines and machinery operated by horses, and the substitution of self-propelled fire apparatus.

The above recommendations of the report are followed by a brief statement of the reasons for them and by the Appendices giving detailed facts and proposed legislation.

In Appendix X, Part 3, Section I, provision is made for the membership of a Fire Bureau in part thus:

"One member from two candidates, one to be nominated by the Boston Society of Architects and one by the Boston Society of Civil Engineers."

Your committee recognizes that the adoption of the proposal now before you will be unprecedented in the history of the Society, and that such action should be conservative and devoid of partisan features.

After careful consideration we advise the formal endorsement by the Society of the recommendations given above. It will be noted that they are reasonably general in character, leaving details to be worked out later by the proper parties.

We do not recommend endorsing the report as a whole, and have quoted from the Appendix only to indicate the part which it has been suggested, should be taken by the Society in administering the proposed law, a part similar to that which it already takes in another case.

We believe that the opportunity is before us to enhance our usefulness and prestige and therefore offer the following vote.

Voted: That the Boston Society of Civil Engineers hereby endorse the general recommendations printed on pages 7 and 8 of the Report of the Committee on Fire Prevention of the Boston Chamber of Commerce under date of September, 1911.

Respectfully submitted,

HENRY F. BRYANT,
FRANK A. McINNES,
HARRISON P. EDDY,
Committee of the Boston Society of Civil Engineers.

MINUTES OF MEETING

OCTOBER MEETING OF THE SOCIETY

Boston, Mass., October 18, 1911.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.50 o'clock P. M. President Charles T. Main in the chair.

The members of the American Society of Mechanical Engineers and of the Boston Section of the American Institute of Electrical Engineers joined in this meeting, the attendance being 180.

It was voted to dispense with the reading of the record of the September meeting and to approve the same as printed in the October *Bulletin*.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:—

Members, Messrs. Cornelius Beard and Frank F. Jonsberg.

Juniors, Messrs. Charles A. Campbell and George E. Chamberlin.

The Secretary also presented for the Board the following vote: Voted, "that the Board of Government recommend to the Society at its meeting of this evening, that a committee of three from the Society be appointed by the President to consider the Report of the Committee on Fire Prevention of the Boston Chamber of Commerce and to report in print with the notice of the November meeting of the Society recommending action on the suggested endorsement of that report for discussion at that meeting as provided by the Constitution, and that November 15, 1911, is thereby designated by the Board as the date for such discussion."

The report was accepted and the recommendation adopted.

The President has appointed as this committee, Messrs. Henry F. Bryant, Frank A. McInnes and Harrison P. Eddy.

The Secretary announced the death of Edward W. Hadcock, a member of the Society, which occurred on October 10, 1911, and by vote the President was requested to appoint a committee to prepare a memoir. The President appointed as that committee Mr. Frank W. Hodgdon.

The President then introduced Mr. Charles Robinson who read the paper of the evening which had been prepared by Mr. Fred A. Wallace, Engineer of the Pacific Mills of Lawrence, entitled "Power System of the Pacific Mills, Methods and Rules for, and Cost of Operation." The paper was fully illustrated by lantern slides.

In the discussion which followed the reading of the paper, members of the American Institute of Electrical Engineers and of the American Society of Mechanical Engineers took a prominent part.

After passing a vote of thanks to Mr. Wallace, the author of the paper, and to Mr. Robinson who read the paper, the Society adjourned.

S. E. TINKHAM, *Secretary*.

LIST OF MEMBERS

ADDITIONS

ANDREWS, HIRAM B. .....166 Devonshire St., Boston, Mass.
BEARD, CORNELIUS .....826 E. 5th St., South Boston, Mass.
JONSBERG, FRANK F. .....733 Old South Bldg., Boston, Mass.

CHANGES OF ADDRESS

BARNES, W. T. .....1824 Harris Trust Bldg., Chicago, Ill.
BLAKE, EDMUND .....621 Idaho Bldg., Boise, Idaho.
BLANCHARD, A. H., Prof., Highway Engineering, Columbia University, New York, N. Y.
COWAN, H. E. .....118 Mt. Vernon St., Boston, Mass.
FERRIS, R. W. .....55 Rose Ave., Akron, Ohio.
FULLER, W. B., care of Mexican Northern Power Co., Ltd., Santa Rosalie, Chihahua, Mexico.
HANSEN, PAUL .....University of Illinois, Urbana, Ill.
HEATH, A. W. .....Cambridge Terrace, Allston, Mass.
JAQUES, W. H. ...Hotel Puritan, 390 Commonwealth Ave., Boston, Mass.
NEWTON, J. B. .....1521 Cedar St., San Diego, Cal.
PHELAN, J. J. ...Care Supt., Coast & Geodetic Survey, Washington, D. C.
SHAW, W. T. .....Middleboro, Mass.
WALKER, P. B. .....P. O. Box 505, Needham, Mass.
WILBER, J. F. .....88 Pearl St., Boston, Mass.

DEATH

HADCOCK, EDWARD W. .....Died Oct. 10, 1911.

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

State Reports

New York Water Supply Commission, Annual Reports for years 1909, 1910 and 1911.

Wisconsin, Survey, 2 vols. Fossils and Inland Lakes.

City and Town Reports

Chicago, Ill., Annual Report of Public Works Dept. for 1910.

Detroit, Mich., Annual Report of Park Dept. for 1910.

New Orleans, La., Semi-Annual Report of Water and Sewerage Commissioners, 1910-11.

New York, N. Y., Annual Report of Board of Water Supply, 1910.

Miscellaneous

Report of National Board of Fire Underwriters on the following cities:—Boston, Mass., Columbus, O., Covington, Ky., Danville, Va., Evansville, Ind., Hackensack, N. J., Little Rock, Ark., Macon, Ga., Minneapolis, Minn., Montpelier, Vt., Muskegee, Okla., Philadelphia, Pa., Phoenix, Ariz., Poughkeepsie, N. Y. Raleigh, N. C., Shreveport, La., Terre Haute, Ind., Topeka and Wichita, Kans., Yonkers, N. Y.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts—Metropolitan Water Works. The pressure tunnel and pipe line at Waban Hill in Newton has been completed, except for the backfilling of trenches and the resurfacing of the grounds at the East Portal. The pipe line and tunnel has been filled with water and will be tested and put into service early in November.

Early in the month work will be in progress on the 24-inch southern high-service pipe line at Forest Hills and on the 20-inch southern extra high-service pipe line at the crossing under the New York, New Haven and Hartford Railroad, about one-fourth of a mile north of Clarendon Hills Station. Flexible joints are being used in the pipe line at this place, where there is very heavy service on the four tracks under which the pipe is laid, and it will be difficult and expensive to repair any joint leak that might occur in the future.

Work is in progress on the foundations for the Hyde Park Pumping Station on Hyde Park Avenue, near the Boston-Hyde Park boundary line.

Metropolitan Park Commission.—*Alewife Brook Purification.* Channel excavation.

Charles River Reservation, Lower Basin.—Construction of granolithic walks, curbs and gutters. Excavation and refilling tree-pits on embankment.

General road repairs and tar and oil treatment.

Harbor and Land Commission.—*South Boston Flats.* At the "Fish Pier" work is being continued on the heavy sea wall both above and below water, stone and gravel ballast are being placed for foundation, and general filling is being done by dumping from scows.

At Oak Bluffs, concrete sea walls are being built at the inner end of stone jetties which protect the entrance channel to Lake Anthony.

Ipswich.—A stone jetty is being constructed on the southerly side of the mouth of Ipswich River, to extend about 400 feet out from the shore.

Hough's Neck, Quincy.—An anchorage basin is being dredged opposite the house of the Quincy Point Yacht Club.

At South Boston, dredging is expected to be resumed shortly, on the extension of the anchorage basin opposite the Mosquito Fleet Yacht Club House.

City of Boston—Public Works Department.—*Highway Division, Paving Service.* Work being done by contract. Berkeley St. from Columbus Ave. to Providence St., change of grade; Central St. from Broad to Kilby St., asphalt pavement; Melrose St. from Ferdinand to Pleasant, wood blocks pavement; Tremont St. from Northampton to Hammond St., repaving; Washington St. from Williams to Dudley St., wood block pavement; Bryant St. from Huntington Ave. to Ruggles St., macadam; Geneva Ave. from Columbia Rd. to Bowdoin St., brick pavement; Talbot Ave. from Blue Hill Ave. to Washington St., brick pavement; Brinsley St. from Washington St. to Columbia Rd., macadam; Thetford Ave. from Norfolk to Evans St., macadam; River St. from Mattapan Sq. to Hyde Park line, macadam; Frost Ave. from Boutwell to Fairview St., macadam; Bay St. from Dorchester Ave. to N. Y., N. H. & H. R. R., macadam; Doris St. from Dorchester Ave. to Gardner Ave., macadam; Bradfield Ave. from South to Centre St., macadam; Railroad St. from Willow to Corey St., macadam; Champney St. from Faneuil to Stratton St., macadam.

Sewer and Water Division, Sewer Service. Work being done by contract. Stony Brook, Sections 7 and 8, conduit work; Canterbury Branch Stony Brook, excavation and slope paving.

Water Service. Work being done by contract. New mains at Commercial St., city proper; Mt. Washington Ave., South Boston, O St. at First, South Boston, and Mallon Rd., Dorchester.

Bridge and Ferry Division. Work in progress. Concrete culvert on Gardner St., West Roxbury; attendant's office at Highland Park standpipe, Roxbury; artificial stone walks at Independence Sq., South Boston.

Boston Transit Commission.—Section 2 of the Beacon Hill Tunnel which section is under Boston Common, is now finished except to complete the construction of some of the stairways and to cover the interior walls of the station with enameled tile and the ceiling with white cement plaster.

Boston and Albany Railroad—Work in Progress. *East Boston.* A building is being erected for the Mechanical Foreman, consisting of one part two stories for shops and machine room, and one part one story for storehouse.

At Brookline Junction, there is a new concrete signal tower being erected.

Worcester.—The work of grade crossing elimination at Worcester is progressing, the masonry work being well advanced and the steel work being also well under way. The construction of a Central Heating Plant is in progress, and work on the extension of the freight house will soon be commenced.

Between Chester and Middlefield, the grading and masonry work in connection with the change of alignment of the railroad for two miles is under way. The new construction consists of two new arches of 60′ span and approximately 400,000 yards of grading, including three changes in the channel of the Westfield River.

Boston and Maine Railroad—Weston, Mass.—Work in connection with the abolition of grade crossings at Church St., Pigeon Hill Road and Concord Road at Weston, Mass., on the Central Mass. branch has been commenced. Three reinforced concrete arches are to be constructed.

Lynn, Mass.—Temporary tracks and station facilities are being put in place to permit of the construction of high level bridges at Central Sq., Market and Washington Sts., and of a reinforced concrete viaduct at Lynn station. A new under crossing is under construction at Bennett St., West Lynn, to provide direct access to the freight yard at that point.

Lowell, Mass.—Beside the Boston & Maine tracks above Lowell toward Nashua, the Aberthaw Construction Co. is just starting the construction of the addition to the plant of the Lamson Consolidated Store Service Co. This is a small job which will be handled through the winter months. The equip-

ment and arrangements for heating will be interesting and it will be a typical winter job quite worth seeing in two or three months.

South Lawrence—At the Pacific Mills, the Aberthaw Construction Company is just completing the filters and is completing the roof of the large central building of the plant. This building is some 900′ x 250′ and is covered by one solid concrete floor. Corrugated iron is used for forms and the forms are supported at considerable height by high studding. The various types of floor construction used on this job beside the size of it make it interesting.

Quincy, Mass—The Fore River Shipbuilding Co. has the following new work in progress:—

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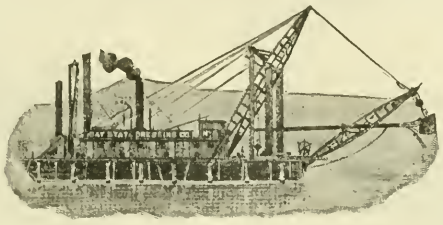

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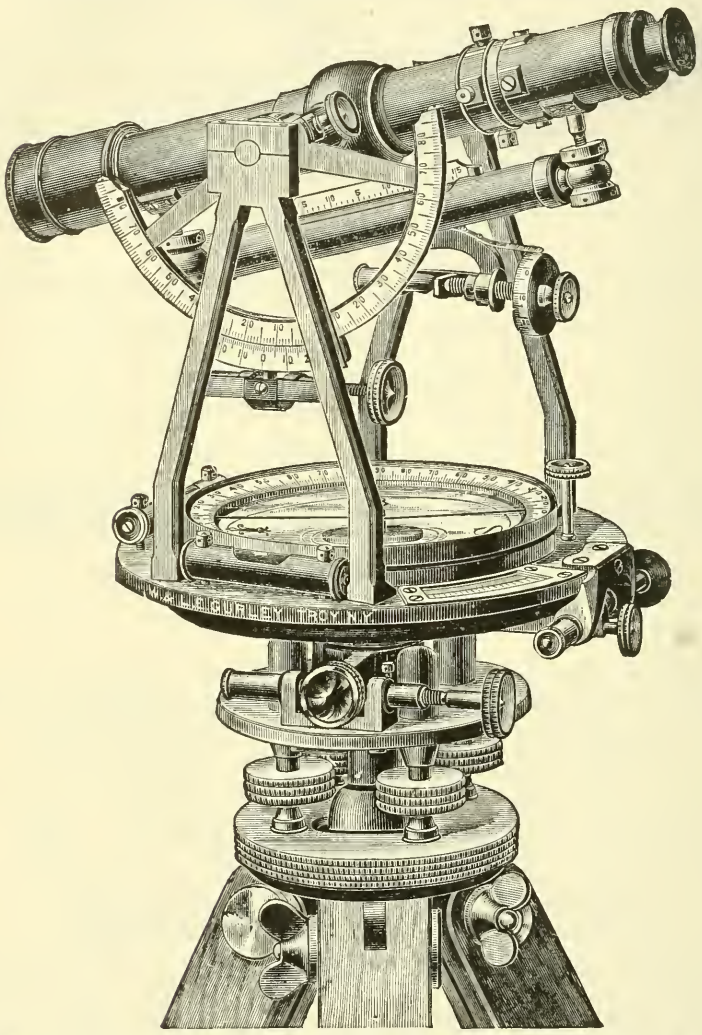

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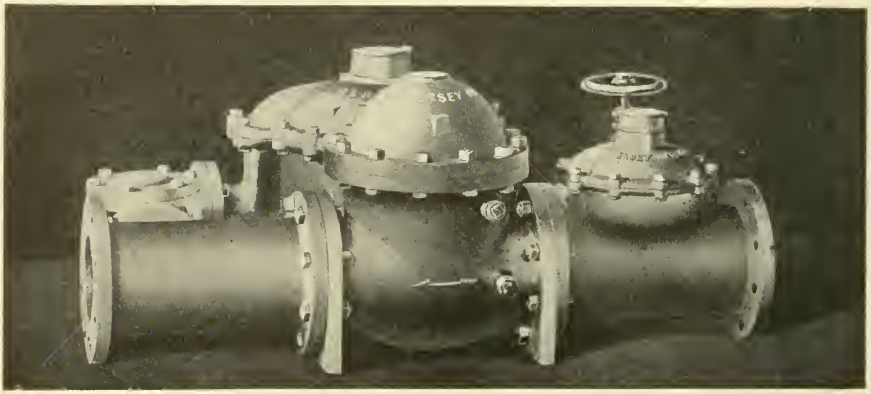

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MONTHLY BULLETIN.

NEW SERIES. DECEMBER, 1911 No. 57

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN

December 20, 1911. Regular meeting in Chipman Hall. Business meeting at 7.30 P. M. At 8 o'clock, joint meeting conducted by the Boston Section of the American Institute of Electrical Engineers. Paper on "Electric Propulsion of Ships."

January 3, 1912. Special meeting of the Sanitary Section.

January 15, 1912. Engineers' Dinner at Hotel Somerset.

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, December 20, 1911, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting:—To canvas the letter ballots on endorsement of Report of Boston Chamber of Commerce on Fire Prevention.

At 8 o'clock a joint meeting will be held with the American Society of Mechanical Engineers and the Boston Section of the American Institute of Electrical Engineers, under the direction of the latter Society.

Mr. W. L. R. Emmet, Engineer of the General Electric Co., will read a paper on "Electric Propulsion of Ships." The paper will be illustrated by lantern slides.

S. E. TINKHAM, *Secretary.*

SPECIAL MEETING OF THE SANITARY SECTION, JANUARY 3, 1912

A special meeting of the Sanitary Section will be held Wednesday evening, January 3, 1912, at the Boston City Club.

Mr. Edward Hutchins, Civil Engineer, with F. W. Bird & Son Company, paper manufacturers of East Walpole, Mass., will read a paper on "The Disposal of Paper Mill Wastes." Mr. Hutchins has prepared a paper, giving in considerable detail a review of the whole subject, and especially a description of the disposal plant at East Walpole.

ENGINEERS' DINNER, JANUARY 15, 1912

The annual reception and dinner of the Engineers of Boston and vicinity will be held at the Hotel Somerset on Monday, January 15, 1912.

The joint committee of arrangements representing the American Society of Mechanical Engineers, the Boston Section of the American Institute of Electrical Engineers and this Society, will send out invitations as soon as final arrangements have been completed.

APPLICATIONS FOR MEMBERSHIP

[December 13, 1911.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

Clark, Frank Willis, Somerville, Mass. (Age 36, b. Portland, Me.) Went to work for Portland Stone Ware Co. sixteen years ago

and has been in their employ ever since, being manager of the Company in Boston at the present time. During the above time he has been in the different departments for the manufacture of sewer pipe. Refers to F. A. Barbour, B. R. Felton, C. W. Sherman, and L. L. Street.

Foster, Clarence Lester, Somerville, Mass. (Age 25, b. Pembroke, Mass.) Graduated from the Cambridge Manual Training School and then took a course in surveying with Prof. Hosmer at the Boston Y. M. C. A. From 1904 to 1908 with the New England Structural Co. as a draftsman, also was with that company for two summers since, and last summer was employed by the Boston Elevated Railway Co. in the Engineering Department. At present an instructor in the Somerville English High School. Refers to L. S. Cowles, R. G. Hartshorne, H C. Hartwell, G. A. Kimball, E. M. Moses and Daniel Scouler, Jr.

Hurd, Stephen Perkins, Swampscott, Mass. (Age 44, b. Charlestown, Mass.) From 1887 to 1893 in Chief Engineer's office, Boston & Maine R. R. on field work with F. B. Rowell, and from 1893 to present time in contracting business, the last seven of which has been devoted to road building and sewer construction. Refers to B. W. Guppy, C. B. Humphrey, E. H. Kitfield, C. F. Knowlton, L. C. Robinson, F. B. Rowell and J. P. Snow.

Parker, Robert Emerson, Reading, Mass. (Age 23, b. Reading, Mass.) Graduated from Reading High School in 1905. Received degree of B. S. at Dartmouth College, 1910, and degree of C. E. at Trayer School of Civil Engineering, Dartmouth College, in 1911. From April to September, 1910, worked as assistant in Central Square office of the Boston Elevated Railway on the Cambridge Subway; from April, 1911, to the present time with Aberthaw Construction Co., Boston, as assistant to A. B. MacMillan, Engineer. Refers to A. B. Barnes, J. A. Garrod, A. B. MacMillan, R. E. Rice, H. F. Sawtelle, and W. T. Shaw.

Rew, Morse Woolley, Boston, Mass. (Age 26, b. Corydon, Iowa.) Graduated from Grinnell College, Iowa, in 1907, and from the Civil Engineering Department of the Mass. Institute of Technology in 1909. From 1909 to 1911 assistant to Prof. C. M. Spofford; summer of 1909 with American Construction Co., of Newton, Iowa; summer of 1910 draftsman with Post & McCord, New York; and since August, 1911, junior engineer in Bridge and Ferry Division, Public Works Department, Boston, Mass. Refers to F. H. Fay, L. E. Moore, C. M. Spofford, G. S. Swain and S. E. Tinkham.

Wentworth, John Prescott, Malden, Mass. (Age 24, b. Malden Mass.) Graduated from the Mass. Institute of Technology in the course of Sanitary Engineering, June, 1910. From June, 1910, to June, 1911, Assistant, Mass. Institute of Technology; and from June 11, 1911, to date

assistant with Metcalf & Eddy, Boston. Refers to H K. Barrows, H. P. Eddy, F. A. Marston, Leonard Metcalf, Dwight Porter, and C. M. Spofford.

MINUTES OF MEETING

NOVEMBER MEETING OF THE SOCIETY

Boston, Mass., Nov. 27, 1911.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.50 o'clock P. M., President Charles T. Main in the chair, 154 members and visitors present.

It was voted to dispense with the reading of the record of the October meeting and to approve the same as printed in the November *Bulletin*.

The Secretary reported for the Board of Government that it had elected the following to membership in the grade of member: Messrs. Walter H. Bacon, Henry A. Herrick, Arthur Howland, William F. Uhl, and Mason T. Whiting.

The President stated that the business before the meeting was to act upon a report of the Committee appointed at the last meeting to recommend action on the suggested endorsement of the report of the Committee on Fire Prevention of the Boston Chamber of Commerce. The report was printed with the notice of this meeting.

Mr. Bryant moved the adoption of the vote submitted in the report, namely: That the Boston Society of Civil Engineers hereby endorse the general recommendations printed on pages 7 and 8 of the Report of the Committee on Fire Prevention of the Boston Chamber of Commerce under date of September, 1911.

The vote was adopted, only one member voting in the negative.

The President announced that under the Constitution of the Society the vote must now be submitted to a letter ballot.

The meeting was then turned over to the American Society of Mechanical Engineers, Prof. E. F. Miller in the chair, who introduced Prof. Charles L. Norton of the Massachusetts Institute of Technology. Prof. Norton read an exceedingly inter-

esting paper entitled, "Some Refractory Substitutes for Wood." The paper was illustrated by lantern slides and was discussed by members of both the Mechanical and Electrical Engineers' societies as well as by members of this Society.

S. E. Tinkham, *Secretary.*

DECEMBER MEETING OF THE SANITARY SECTION

The regular December meeting of the Sanitary Section of the Boston Society of Civil Engineers was held at the Boston City Club, December 6, 1911, at 7.30 o'clock P. M., with Mr. George A. Carpenter in the chair. The meeting was preceded by the usual dinner at 6 P. M. There were 34 members and guests present at the dinner, and about 43 at the discussion.

Messrs. George C. Whipple, J. A. Lockhart and Clarence W. Rolfe were enrolled as members of the Sanitary Section.

Mr. L. K. Rourke, Commissioner of Public Works, City of Boston, gave an interesting talk with special reference to the sanitary work in the Canal Zone at Panama. Mr. Rourke's talk was illustrated with lantern slides descriptive of both the sanitation and general work at Panama.

This was followed by a paper on the "Sanitation of Construction Camps along the Catskill Aqueduct" by Mr. A. J. Provost, Jr., of the firm of Lederle & Provost of New York City, which was also illustrated with slides.

Mr. W. W. Locke, Sanitary Inspector of the Metropolitan Water Works read a short paper on the "Sanitation of the Contractors' Camps in the Wachusett Basin" and on the inspection carried on in the watersheds of the Metropolitan Water Supply.

Additional facts were given by Mr. Hiram A. Miller, and Mr. Edmund M. Blake and others entered into the discussion.

A vote of thanks was extended to Messrs. Rourke, Provost and Locke, and the meeting adjourned at 9.45 P. M.

Edward Wright, Jr., *Clerk pro tem.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE

78. Age 41. Graduate, Government School of Architecture and Construction, War Dept., Chatham, England. Sixteen years Government Inspector of works, England and Canada; appointed Inspector for City of Boston on Boston Arena; from 1909 to 1910. with Eastern Concrete Construction Co.; 1910, Construction Inspector on Reinforced Concrete and Structural Steel buildings at Manchester, N. H. Desires position as Resident Engineer or Inspector. Salary, $30 00 per week to start.

92. Age 47. Graduate of Mass. Institute of Technology. Ten years in responsible charge of engineering features of municipal water supply. Ten years' experience in general engineering practice. Roads, sewers and sewage disposal problems. Harbor work (dredging, bulkheads and sea walls). Able to furnish instruments if desired. Desires position either temporary or permanent, with compensation according to responsibility assumed.

LIST OF MEMBERS

ADDITIONS

Andrews, Hiram B. .....166 Devonshire St., Boston, Mass.
Bacon, Walter H. .....188 Savin Hill Ave., Dorchester, Mass.
Campbell, Charles A. .....31 Elgin St., West Roxbury, Mass.
Gibson, Bradford A. .....Leicester, Mass.
Howland, Arthur .....100 Summer St., Boston, Mass.

CHANGES OF ADDRESS

Barnes, T. Howard .....8 Rock Hill, West Medford, Mass.
Blake, Edmund .....Care of State Board of Health, Boston, Mass.

BROCK, NATHAN S. .....1377 Commonwealth Ave., Allston, Mass.
EATON, J. HAWORTH .....1 Trowbridge Pl., Cambridge, Mass.
FARLEY, WILLIAM F., Steep Hill Falls, Michipicatere, Ontario, Canada
FARNUM, LORING N. .....129 Front St., New York City
FERRIS, RAYMOND W., with Akron Water Works Co., 55 Rose Ave., Akron, Ohio
HOBSON, GEORGE F. .....1712 17th St., N. W., Washington, D. C.
LAWRENCE, FREDERIC K. .....Care of J. H. Tower, Providence, R. I.
MILNE, ALEXANDER P. .....1222 Spalding Bldg., Portland, Ore.
PENARD, THOMAS E. .....12 Norfolk Rd., Arlington, Mass.
PHELAN, JOHN J., care of Supt. Coast & Geodetic Survey, Washington, D. C.
RANKIN, JOHN S. .....88 Pearl St., Boston, Mass.
SMITH, SIDNEY .....76 White St., East Boston, Mass.
SHUTE, GEORGE P., Jewell Filration Co., P. O. Box P, Jersey City, N. J.

DEATH

GERRY, LYMAN L. .....Died July 15, 1911

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Panama Canal, Annual Report of Commissioners for years 1910-11, 2 vols.

Naphthalene in Road Tars. Hubbard and Draper.

State Reports

Connecticut, Railroad Commissioners' Annual report for 1910.

New York, Water Supply Commissioners. Water Power for Farms.

New York, Water Supply Commissioners. Water Resources of New York.

New York, Water Supply Commissioners. New York's Water Supply.

New York, Public Service Commissioners' Annual report for 1910, Vol. 1.

City and Town Reports

Milwaukee, Wis., Annual report of City Engineer for 1910.

Philadelphia, Pa., Bureau of Surveys, Annual report for 1910.

Reading Pa., Annual report of Water Commissioners for 1910-11.

Taunton, Mass., Annual report of Water Board for 1910.

Miscellaneous

New York Terminal. Calvin Tomkins.

Hydraulics. By Hector J. Hughes and Arthur T. Safford. Gift of authors.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts— METROPOLITAN WATER AND SEWERAGE BOARD.—*Water Works.* All Water Works construction has been completed for this season, with the exception of the grading and concrete foundations for the Hyde Park pumping station. This work is being done by day labor force and will be continued during favorable weather.

The pumping station is located between Hyde Park Avenue and the New York, New Haven & Hartford Railroad, about one-fourth of a mile north of Clarendon Hills Station. When completed the station will contain two pumping engines for the southern extra high-service district, with a total capacity of six million gallons per day.

HARBOR AND LAND COMMISSION.—Construction of the new "Fish Pier" at South Boston Flats continues in its various details about as reported last month.

At Oak Bluffs, concrete sea walls are being built on the beach as an addition to the stone jetties at the entrance to Lake Anthony.

Ipswich.—At the mouth of Ipswich River, stone is being delivered by vessel and placed in the portion of the jetty above high water.

At South Boston, dredging has been resumed opposite the Mosquito Fleet Yacht Club House, enlarging the basin.

Boston Transit Commission.—Section 2 of the Beacon Hill Tunnel, which section is under Boston Common, is now finished except to complete the construction of the moving stairway exits leading up to the surface of Tremont Street and to cover the interior walls of the station with enameled tile and the ceiling with white cement plaster.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

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Two fishing steamers, Surf and Swell.
U. S. A. suction dredge, New Orleans.

Lowell, Mass.—At the American Hide & Leather Company's new all concrete beam house the Aberthaw Construction Co. have all the one and two-story portions enclosed, while the first "girderless" or "Mushroom" floor of the hide storage was completed this week.

At the Walker Street work for the Lamson Consolidated Store Service Co. some careful systematizing of form erection has shown good economy. Ground was broken here October 16th. Second floor concrete is now being placed. The job is a long span reinforced beam construction and is designed by Lockwood, Greene & Co.

Lawrence, Mass.— The Aberthaw Construction Co. are now placing concrete on the floor of a large overhead coal pocket of somewhat unusual design in the new print works of the Pacific Mills Co. This coal pocket will contain nearly 4,000 yards of concrete and will hold 10,000 tons of coal.

Buffalo, N. Y.—The private freight terminal of the Larkin Co. is now concreted to the tenth floor leaving the roof only to complete before the building is enclosed. Aggregates are being heated by a 60 h. p. portable steam plant of the Aberthaw Construction Co. who are contractors for the building.

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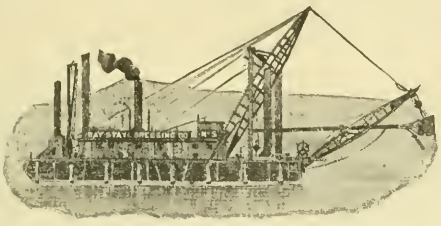

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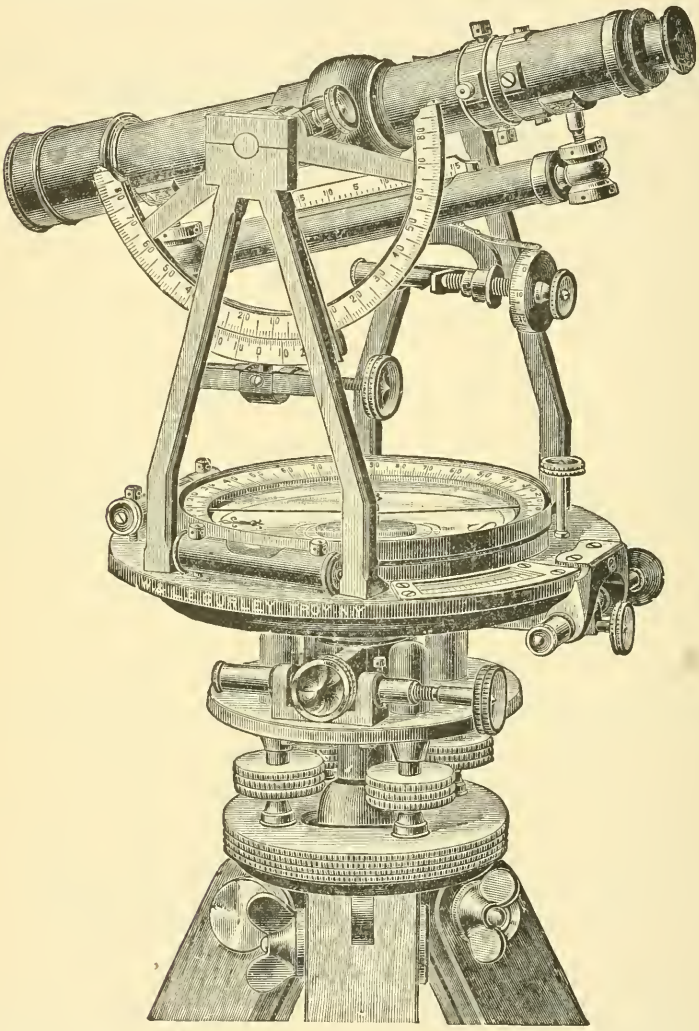

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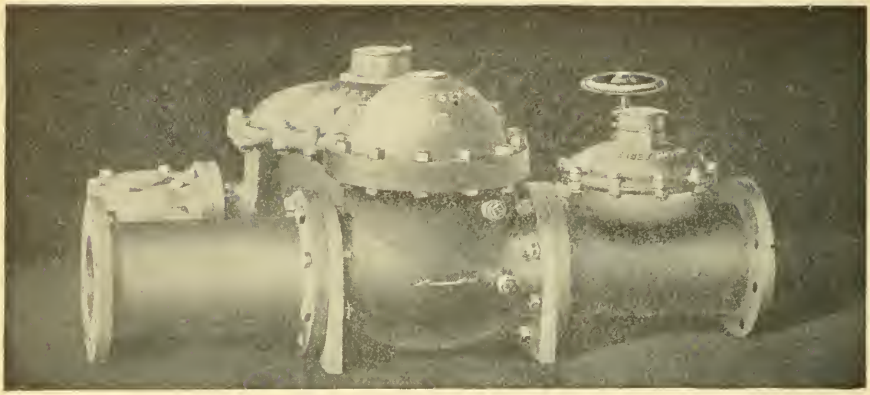

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MONTHLY BULLETIN.

NEW SERIES. JANUARY, 1912 No. 58

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN

January 24, 1912. Regular meeting in Chipman Hall at 7.30 P. M. Paper by E. S. Larned on "Sand for Use in Cement Mortar and Concrete."

February 7, 1912. Meeting of Sanitary Section.

Prospectus of the Engineers Club, Boston

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, January 24, 1912, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting:—To choose a Committee of Five to nominate officers for the ensuing year.

Mr. Edward S. Larned will read a paper entitled "A Study of Sand for Use in Cement Mortar and Concrete."

He will also read, through the courtesy of the author, Mr. Cloyd M. Chapman, Engineer-in-Charge, Westinghouse, Church Kerr Co., New York City, his paper entitled "Waterproofing with Water," presented the National Association of Cement Users at their Seventh Annual Convention, December, 1910.

The papers will be illustrated by lantern slides.

S. E. TINKHAM, *Secretary.*

SPECIAL MEETING OF THE SANITARY SECTION, FEBRUARY 7, 1912

A special meeting of the Sanitary Section will be held at the Boston City Club, on Wednesday evening, February 7, 1912, at 7.30 o'clock P. M.

Mr. Ezra B. Whitman, Chief Engineer of the Baltimore Water Board, and until recently Engineer in charge of the design and construction of the Baltimore Sewage Disposal Works, will give a talk on the construction of these works. These sewage disposal works are among the largest in the country, and present the results of the more recent studies along the lines of sewage purification. Mr. Whitman has prepared a large number of slides to illustrate his talk, and as he is well known among the members of the Society, it seems unnecessary to add that an exceedingly interesting and instructive meeting may be expected. Special notices will be sent out a few days before the meeting.

APPLICATIONS FOR MEMBERSHIP

[January 17, 1912.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

Manley, Henry, Jr., West Roxbury, Mass. (Age 31, b. West Roxbury). Educated in the Boston Public School and at the Mass Inst. of Technology, 1898-1899; 1900-01, inspector and assistant for one and a half years with the Mass. Tel. & Tel. Co.; 1901 to 1904, assistant and inspector for two and a half years, on Swampscott Sewerage System, Erastus Worthington, Engineer; in 1905, two months inspector, Boston

Transit Commission, four months with R. M. Snyder, assistant, miscellaneous building construction, Camden Co., Mo.; 1906, miscellaneous work for Stony Wold Sanatorium, Lake Kushaqua, N. Y.; 1907, assistant for R. S. Weston at Lake Kushaqua, N. Y., and assistant with Metcalf & Eddy on Finance Commission work; 1908, assistant with R. S. Weston at Lake Kushaqua, in charge of construction of small sprinkler filter and other work; 1909, resident engineer for R. S. Weston at Lake Kushaqua on $55,000 worth of building construction, all day labor work; 1910, inspector, New York Pneumatic Service Co., B. C. Bachellor, Chief Engineer, and 1911, assistant for R. S. Weston, in charge of construction of low level sewer and settling tank, Nantucket, Mass., and for Richardson & Hale, on surveys and borings, Marthas Vineyard. Refers to H. P. Eddy, R. K. Hale, Leonard Metcalf, E. B. Richardson, C. W. Sherman and R. S. Weston.

Reynolds, David S., Boston, Mass. (Age 31, b. Jamaica, B. W. I.) Graduated from York Castle High School, received a certificate from Cambridge University, England, and attended Mass. Inst. of Technology from 1899 to 1902. From 1902 to 1905 with the Bay State Gas Co.; from 1905 to present date with the Boston Consolidated Gas Co. His work with these companies has been drafting, designing and estimating. At present employed as Chief Draftsman of the Boston Consolidated Gas Co. Refers to H. W. Fitts, J. A. Gould, W. E. McKay, J. C. Moses and J. C. S. Taber.

Saville, Thorndike, Cambridge, Mass. (Age 20, b. Malden, Mass.) At present student at Harvard College, and Editor of the Harvard Engineering Journal. Lived for three years on the Panama Canal and has had an opportunity of becoming familiar with a great variety of engineering projects. Refers to J. R. Freeman, C. M. Saville, E. C. Sherman, and F. P. Stearns.

ENGINEERS CLUB, BOSTON

Early in 1910 a number of technical societies in Boston appointed representatives to a joint committee for the purpose of studying the feasibility of an Engineers Club, Society Headquarters, and office building in Boston, in many respects similar to the Engineers Club and United Engineering Building in New York.

For nearly two years this committee conducted a thorough investigation of the possibilities, consulted with many prominent financiers and others interested, and gave careful study and consideration to twelve different locations and building projects. It carefully sounded the sentiment as to prospective member-

ship in the proposed club, and consulted the various societies which might be interested in permanent headquarters.

The results of this study have demonstrated that there is a limited demand for permanent headquarters for the various societies, and that the time is not ripe for the successful promotion of a project on such ambitious lines as originally conceived. This study has, however, developed that there is a strong sentiment in favor of establishing a Club, and providing a small assembly hall suitable for the meetings of many of the technical societies.

Acting upon the favorable sentiment shown, on December 18, 1911, the Engineers Club was formally organized, and on January 9, 1912, was incorporated under the laws of the Commonwealth.

Objects

As stated in the By-Laws, "The objects of this Club are the encouragement of social intercourse among engineers and men interested in science and its applications and the improvement in the standing and usefulness of the technical professions by the maintenance of a scientific library, a meeting-place, and otherwise."

Membership

The membership of the Club is limited to five hundred resident, two hundred non-resident, and fifty life members. Non-resident members are persons not having a customary place of residence, study, or business, within twenty-five miles of the city of Boston, all other members being considered resident members. All classes of members have the same duties and privileges except as to payment of entrance fees and dues.

Entrance Fees and Dues

The entrance fee for resident members is fifty dollars and for non-resident members twenty-five dollars. The annual dues for resident members are fifty dollars and for non-resident members twenty-five dollars, payable semi-annually in advance. If vacancies exist, members may be transferred to the list of life members by vote of the Board of Governors upon payment of five hundred dollars, and thereafter be exempt from annual dues.

Club House

After a careful consideration of all sites offered, the Board of Governors has voted to take an option on the property at *No. 2 Commonwealth Avenue,* corner of Arlington Street, under lease with the privilege of purchase. This location is unsurpassed as a club site by any in Boston. Plans have been drawn for remodelling the house, which will provide most attractive quarters. Provision will be made for a small assembly hall with a seating capacity of two hundred, and permanent quarters for the Boston Society of Civil Engineers, a proposition for this latter arrangement now being under consideration by that Society. A separate entrance from Arlington Street will be provided for the Assembly Hall and the headquarters of the Boston Society of Civil Engineers. Provision will be made for the establishment and maintenance of a first-class engineering and scientific library.

The club proper will contain all the usual appointments of a modern first-class club, including dining room, private dining rooms, sleeping rooms with bathing facilities, etc. The assembly hall will be so arranged that it can be used, if necessity demands, as an auxiliary dining room.

It is expected that final arrangements as to remodelling the club house will be consummated by April 1, and that the premises will be ready for occupancy early in the fall.

The indications are that the club will commence operation with full membership and a waiting list, and from the start be ranked among the strong clubs of Boston and vicinity.

Officers

President, Ira N. Hollis; Vice-Presidents, Charles L. Edgar, Charles T. Main; Secretary, Luzerne S. Cowles; Treasurer, Eliot Wadsworth.

Board of Governors—Charles S. Clark, George B. Francis, Ira N. Hollis, Dugald C. Jackson, J. Henry Neal, Luzerne S. Cowles, Charles L. Gagnebin, Harry J. Horn, Leonard Metcalf, Frederic P. Valentine, Charles B. Davis, Charles L. Edgar, Charles T. Main, Eliot Wadsworth, William A. Wood.

MINUTES OF MEETING

DECEMBER MEETING OF THE SOCIETY

Boston, Mass., December 20, 1911.—A regular monthly meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.40 o'clock, Vice-President James W. Rollins in the chair. The members of the American Society of Mechanical Engineers and of the Boston Section of the American Institute of Electrical Engineers joined in this meeting, the attendance being 220.

It was voted to dispense with the reading of the record of the last regular meeting and to approve the same as printed in the December *Bulletin*.

The President appointed Messrs. F. H. Fay, C. R. Gow and L. L. Street as tellers to canvas the letter-ballots on the endorsement of the report of the Committee of the Boston Chamber of Commerce on Fire Prevention. Later in the meeting the tellers reported that the whole number of ballots cast was 291, of which 273 were yes and 18 no. The chair declared that as more than two-thirds had voted in favor of the endorsement, it was adopted.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:—*Member*, Roy L. Lamphear. *Juniors*, William A. Bryant, and Fred B. Skillin.

The Secretary reported the death of Lyman L. Gerry, a member of the Society, which occurred on July 15, 1911, and by vote the President was requested to appoint a committee to prepare a memoir. The President has appointed as this Committee Mr. A. M. Lovis.

On motion of Mr. Higgins the thanks of the Society were voted to Charles Logue Building Co. and the Concrete and Expanded Metal Co., for courtesies shown members on the occasion of the excursion to the new Ball Park this afternoon.

At 8 o'clock Prof. W. L. Hooper, Chairman of the Boston Section of the American Institute of Electrical Engineers, assumed the chair and introduced Mr. W. L. R. Emmett, Engineer of the General Electric Company, who read a paper on "Electric

Propulsion of Ships." The paper was illustrated by lantern slides. A general discussion followed the reading of the paper. Adjourned.

S. E. Tinkham, *Secretary.*

JANUARY MEETING OF THE SANITARY SECTION

A special meeting of the Sanitary Section of the Boston Society of Civil Engineers was held Wednesday evening, January 3, 1912, at the Boston City Club. The dinner preceding the meeting was attended by 21 members and guests. Chairman George A. Carpenter presided over the meeting. There were 36 present.

Mr. Edward Hutchins, Engineer with the International Paper Co., of Glens Falls, N. Y., gave an abstract of his paper on "The Disposal of Paper Mill Waste." Mr. Hutchins described briefly the process of making paper, and the character of the wastes resulting. Various kinds of "save alls" and other methods of purifying these wastes were illustrated by means of lantern slides. The paper dealt principally with the work which has been carried on at the plant of F. W. Bird & Son of East Walpole, Mass., and described in detail the disposal plant developed. Mr. Hutchins advocated the passage of laws to establish standards to which the paper manufacturers could reasonably be required to purify their wastes. The question of to what extent should such wastes be allowed to enter municipal sewerage systems without preliminary treatment was also touched upon, as well as the problems to be encountered when large quantities of water in the form of wastes are diverted from a river used for power purposes.

The paper was discussed by Messrs. R. S. Weston, E. Worthington, George A. Carpenter, Charles W. Sherman, and Edward Wright, Jr.

On motion of Mr. Edward Wright, Jr., and duly seconded, it was voted to extend the thanks of the Section to Mr. Hutchins for his kindness in preparing the paper presented.

The meeting adjourned at 10 o'clock P. M.

Frank A. Marston, *Clerk.*

LIST OF MEMBERS

ADDITIONS

HERRICK, HENRY A. ..... 331 Forsyth Bldg., Fresno, Cal.
UHL, WILLIAM F. ..... 201 Devonshire St., Rm. 820, Boston, Mass.
WHITING, MASON T. ..... 145 Essex St., Longwood, Mass.

CHANGES OF ADDRESS

BIGELOW, W. W. ..... 88 Broad St., Rm. 608, Boston, Mass.
DEAN, LUTHER ..... 4 Clinton St., Taunton, Mass.
DRAKE, H. P. ..... P. O. Box 855, Connellsville, Pa.
DUTTON, CHARLES H. ..... 106 Pembroke St., Boston, Mass.
HUTCHINS, EDWARD ..... Glens Falls, N. Y.
JOHNSON, H. M., Highway Div., Pub. Wks. Dept., 70 City Hall, Boston, Mass.
KIMBALL, HARRY L. ..... Care of Studebaker Corp., South Bend, Ind.
MATTICE, ASA M. ..... R. F. D. No. 5, Lockport, N. Y.
NORWOOD, E. A. ..... 79 Milk St., Boston, Mass.
PATSTONE, L. FREDERICK ..... First Asst. City Engr., Manila, P. I.
SAVILLE, CALEB M. ..... City Hall, Hartford, Ct.
SMITH, CHESTER W. ..... Pulaski, N. Y.
WALKER, JOSEPH W. ..... 379 Washington St., New York, N. Y.

DEATH

SAWYER, EDWARD, ... Died Dec. 27, 1911.

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Panama Canal Record. Vols 2 and 3.

State Reports

Mass. State Board of Health, Annual Report for 1910.

New Jersey Flora of Raritan Region. E. W. Berry.

New Jersey Mineral Industry for 1910. Kümmel and Jones.

New Jersey Fossil Remains. H. W. Fowler.

New Jersey Bay Head Canal. H. B. Kümmel.

City and Town Reports

Boston, Mass., Annual Report of Street Dept. for 1910.

Boston, Mass., Annual Report of Water Commissioner for 1910.

Milwaukee, Wis., Annual Report of Water Commissioner for 1910.

Miscellaneous

Brooklyn Engineers' Club. Proceedings for 1911.

Mine Engineering. Sanders, Parlee and MacDonald.

Practical Shaft Sinking. Francis Donaldson.

Geology Applied to Mining. J. E. Spurr.

Corrosion and Preservation of Iron and Steel. Cushman and Gardner.

Handbook of Mathematics. J. Claudel.

Life of T. A. Edison. F. A. Jones.

FREDERIC I. WINSLOW, *Librarian.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE

93. Age 24. Two years at Mass. Inst. of Technology and three years at Virginia Military Inst. Two years in city and road improvement work. Seven years with the Boston & Albany R. R. Two months with the War Dept. on a river survey in Texas. Instrument experience a year and a half. Chief of party for two months. Some experience in construction of culverts and laying track on the B. & A. Desires position as instrumentman or chief of party.

94. Age 28. Graduate of Tufts College. From 1907 to present date in the employ of Adolph Suck, M. E., Architect and Engineer of Reinforced Concrete Structures. Has served as Inspector for Architect on Structures, also as Draftsman, Designer and Estimator in Office. Desires position with Architect or Contractor preferably on similar work, either in office or outside.

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts— METROPOLITAN WATER AND SEWERAGE BOARD.—*Water Works.* All Water Works construction has been completed for this season, with the exception of the grading and concrete foundations for the Hyde Park pumping station. This work is being done by day labor force and will be continued during favorable weather.

The pumping station is located between Hyde Park Avenue and the New York, New Haven & Hartford Railroad, about one-fourth of a mile north of Clarendon Hills Station. When completed the station will contain two pumping engines for the southern extra high-service district, with a total capacity of six million gallons per day.

HARBOR AND LAND COMMISSION.—Construction of the new "Fish Pier" at South Boston Flats continues in its various details about as reported last month.

The control of all Boston Harbor work is now under the "Directors of the Port of Boston."

Oak Bluffs.—The construction of sea walls mentioned in the last *Bulletin* has been completed.

Ipswich.—At the mouth of Ipswich River stone is being delivered by vessel and placed in the Jetty above high water. This work is nearing completion.

Boston Transit Commission.—Section 2 of the Beacon Hill Tunnel, which section is under Boston Common, is now finished except to complete the construction of the moving stairway exits leading up to the surface of Tremont Street and to cover the interior walls of the station with enameled tile and the ceiling with white cement plaster.

Boston Elevated Railway Company.— ELEVATED AND SUBWAY CONSTRUCTION.—*Forest Hills Station.*—The additional exit stairway recently installed from the south gallery to the

surface level has proved of great value in distributing traffic transferring to southbound surface cars. It is now planned to further relieve congestion by erecting a stairway from the north exit gallery to the surface level (east side) thereby giving a direct exit to Forest Hills Square.

Green Street Station.—Rapid progress is being made in the erection of structural steelwork for this new station. Ornamental iron erection will proceed at once and the completion of the station ready for use may be expected this spring. The station is particularly convenient to Jamaica Plain patrons of the Elevated, being three-quarters of a mile from Forest Hills Station and about one-half a mile beyond Egleston Square Station.

Egleston Square Station.—Following similar extensions at all other stations the platform is here being extended to accommodate 8-car trains. No other changes are contemplated at the present time.

Dover Street Station.—Authority has already been granted for making extensive alterations at this point. The main elevated tracks are to be drawn together to 12 feet on centers and two side platforms substituted for the present inter-track station. To accomplish this end will necessitate the erection of a temporary station a couple of hundred feet to the south of Dover Street. Owing to the fact that only one elevated track will be available for traffic in both directions for considerable periods, this work will not be done until next summer when the Elevated traffic is lightest.

Rowes Wharf Station.—It is expected that before summer additional entrance and exit stairs will be constructed at this point to facilitate handling the excessively heavy "beach" traffic. To accomplish this will require the substitution of a 72-foot through span for the present deck span on the northbound track. The erection without disturbing traffic presents serious difficulties.

Sullivan Square Station.—The changes and additions are well under way and work will continue through the spring and summer. The new layout with southbound platform (over

Main Street) and bridges connecting with present terminal building will be complete and ready to operate in about six months.

North Station West.—Work on this station is progressing rapidly and it is expected that this commodious station with its convenient transfer facilities will be opened to the public early this spring.

Charles River Bridge.—The bascule lift bridge over draw span has been installed, practically completing this work.

East Cambridge Extension.—A reinforced concrete parapet is being constructed along outer footwalk of all curves as an additional safe guard in case of derailment.

New Route to Cambridge via the Cambridge Subway.—Work of finishing the Park Street Station is in progress. Tracks are laid from near Park Street Station to Harvard Square. The work of finishing the three stations in Cambridge is under way and nearly completed. School trains are being run over the tracks for the instruction of motormen, and also for the purpose of trying out the electrical machinery, signals, etc. Low shelters on the sidewalks to the several stations in Cambridge are being constructed. The plumbing at the several stations is nearly completed; this involves the introduction of the use of compressed air for raising the sewage from the toilet rooms to the sewers. The tiling at the Harvard Square Station is being rapidly installed.

A tunnel from the Harvard Square power house to the Eliot Square car house and Bennett Street car house, for water pipes, heating pipes, wires and conduits, is nearly completed.

New York, New Haven & Hartford Railroad.—Reconstruction of Cohasset Narrows Bridge, Buzzards Bay, to provide for double track. The bridge will consist of four plate girder fixed spans and one bascule draw span. Contract for superstructure has been awarded. Specifications and proposals for substructure now being prepared.

Boston & Maine Railroad.—Elimination of Grade Crossings at Weston.—The two span concrete arch bridge at Weston Station is completed. The single span concrete arch

bridge at Cherry Brook Station is under construction. The approaches at both bridges are being graded.

The Boston Terminal Company.—Extension of South Station Office Building. Constructing foundations and preparing for the extension.

Lawrence, Mass.—The Aberthaw Construction Company is just building a 10,000 ton reinforced concrete coal pocket for the Pacific Mills' New Print Works Dept. Work on this is being carried on through the cold weather. The cold weather methods of handling concrete work are interesting.

Lowell, Mass.—For the Lamson Consolidated Store Service Co. the Aberthaw Construction Co. is just putting the roof onto the addition to their plant.

Charlestown, Mass.—At the Navy Yard the concrete test specimens for testing the effect of sea water on concrete built by the Aberthaw Construction Co. are being moved from the wharf, where they have hung for the last three years, to a new position on the next wharf. There is an opportunity at the present time to examine these under winter conditions. These piers probably constitute the best test of the effect of sea water on concrete that there is in this section.

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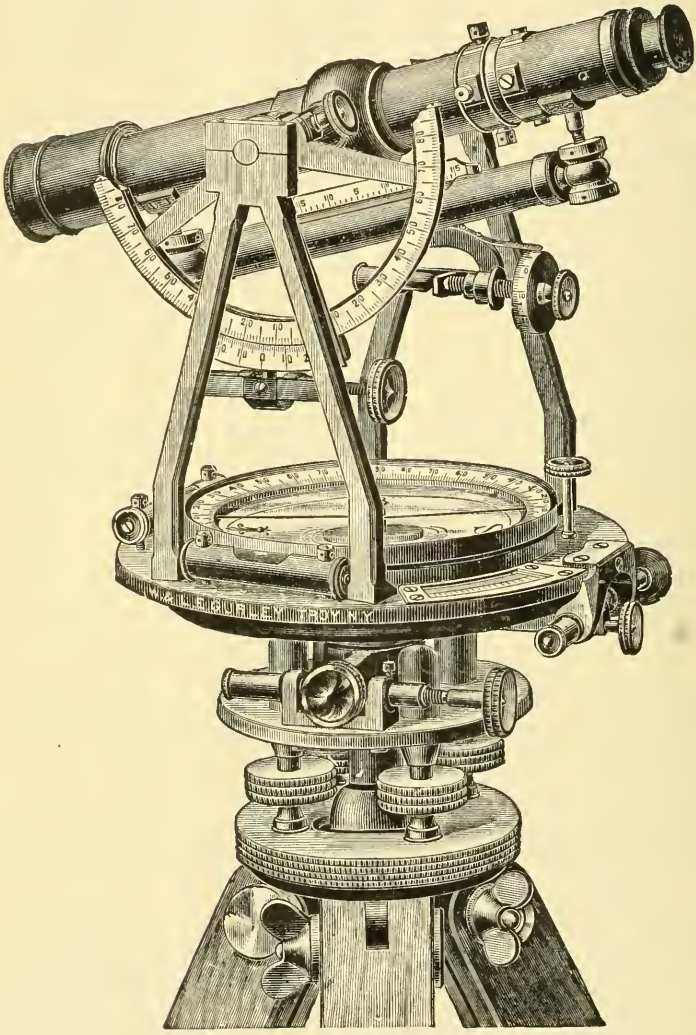

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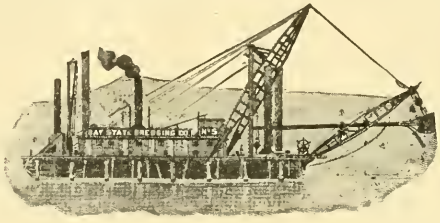

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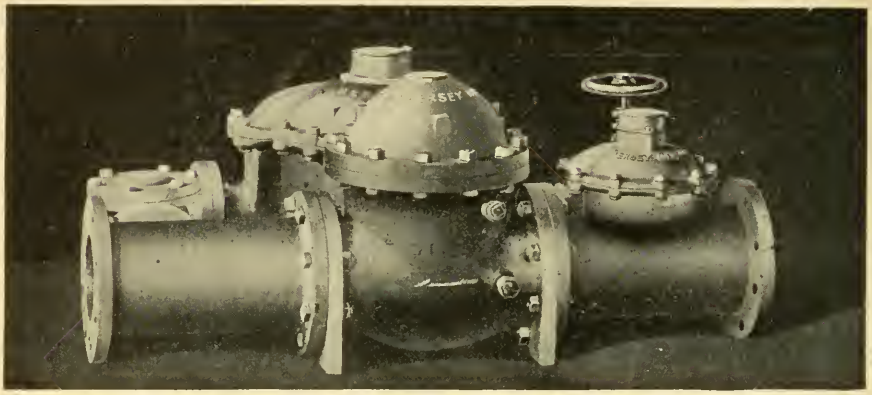

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ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. FEBRUARY, 1912 No. 59

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN

February 21, 1912. Regular meeting in Chipman Hall at 7.30 P. M. Paper by Prof. Charles M. Allen on the "Uses and Abuses of Gasoline, Kerosene, Etc."

February 21, 1912. Excursion to East Boston to inspect reinforced concrete construction, at 2 o'clock P.M.

March 6, 1912. Annual Meeting of Sanitary Section.

March 20, 1912. Annual Meeting of the Society.

Binding Journals. Membership cards.

International Congress of Navigation.

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, February 21, 1912, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Prof. Charles M. Allen of the Worcester Polytechnic Institute will read a paper on "Uses and Abuses of Gasoline, Kerosene, Etc."

Prof. Allen will perform quite a number of experiments illustrating the uses of gasoline and kerosene and the dangers connected with the handling of these fluids.

S. E. TINKHAM, *Secretary.*

EXCURSION FEBRUARY 21, 1912

Through the courtesy of The Concrete Engineering Company of 101 Tremont Street, Boston, the Society is invited to visit the work now under construction by them at the corner of Porter and Orleans Streets, East Boston, on the afternoon of Wednesday, Feb. 21, 1912.

They are erecting at this place a reinforced concrete factory building for The East Boston Company five stories in height and covering an area sixty feet by two hundred feet.

This work is of particular interest on account of the use by the contractors of the Ransome Unit System of construction for which system they are the New England Licensees, and the above is one of a number of concrete buildings now under construction by them using this system.

By the Ransome System all members for the proposed building except the floor slabs are cast in forms on the ground and set in place by a derrick. The floor slab which is cast in place in the usual manner ties the other parts together. In addition, the erected members are grouted at their joints, the whole structure being thus made monolithic.

It is claimed for this method of construction that a saving of fifteen per cent in cost is effected, that a greatly reduced construction force is needed, that they can be employed to better advantage and that the work can be subjected to closer and better inspection than is otherwise possible. It is also claimed that the work can be done by this method in the winter months as well as at any other season of the year.

The contractors expect that it will be possible by Feb. 21 to show all of the several processes in operation including casting, erecting and floor slab work.

The Committee believes that this invitation offers an exceptional opportunity to the members of the Society of inspecting this comparatively new method of construction which, if it bears out the claims of its inventors marks a distinct advance in the reinforced concrete building art.

Members or their friends who attend this excursion will meet at the site of the work at two o'clock P. M.

Take any East Boston Tunnel car to the Maverick Square outlet and walk two blocks east to Porter Street and two blocks south to the work. By taking a Chelsea Street car members can get off at Porter Street and save one-half the walk.

The Excursion Committee desires to call the attention of the Society to the fact that the attendance at some of the recent excursions has been disappointing to them as well as to those persons who have been kind enough to invite an inspection of their work. For this reason it has been thought best to reduce the number of excursions in the hope that more interest may be manifested in them if they occur less frequently.

EXCURSION COMMITTEE.

ANNUAL MEETING OF THE SANITARY SECTION

The annual meeting of the Sanitary Section will be held at the Boston City Club on Wednesday evening, March 6, 1912. Dinner will be served as usual about 6 o'clock.

Officers and members of the Executive Committee will be elected for the coming year and the annual reports will be presented.

It is not feasible at this time to announce the subject for the evening's discussion, but details will be furnished in the notice sent out a few days before the meeting.

ANNUAL MEETING OF THE SOCIETY

The annual meeting of the Society will be held on Wednesday, March 20th, 1912, at the Boston City Club, 9 Beacon Street, Boston, where the very satisfactory accommodations of former years have been secured.

The Annual Meeting for the transaction of business and the announcement of the result of the letter ballot for officers will be held at 12 o'clock M. A short address will be made by the retiring president.

The Annual Dinner will be served at half-past two o'clock in the Auditorium of the Club.

In the evening a Smoker will be held in the Auditorium at

which light refreshments, music and other entertaining features may be expected.

Further details will be furnished in a special circular to be sent out early next month and in the March *Bulletin*.

BINDING THE JOURNALS

Members who wish the Secretary to attend to the binding of their numbers of the *Journal* are requested to send them to Room 715, Tremont Temple, Boston, before March 1st.

Arrangements have been made by which members can have the *two* volumes bound in *one* for 70 cents, or each volume bound separately for 40 cents; the style of binding to be the same and uniform with that of former years. Mark clearly which way it is desired the binding should be done.

MEMBERSHIP CARDS

The membership cards for 1912 are now ready for distribution and one will be mailed to any member who applies to the Secretary.

APPLICATIONS FOR MEMBERSHIP

[February 14, 1912.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

Allen, Leslie Herbert. (Age 31, b. London, England). Educated in the City of London Schools and later articled to a London Quantity

Surveyor for four years, later served with him seven years, the last four being chief assistant; spent one year in private practice before coming to the United States. From 1909 to 1912 with Aberthaw Construction Co. of Boston, as chief estimator and cost accountant. Qualified in 1902 as Associate Member of Surveyors' Institution, England; qualified in 1907 for fellowship in the same; and elected a member of the Concrete Institution, London, England, in 1909. Refers to C. S. Allen, H. F. Bryant, J. W. Rollins, L. C. Wason.

Clark, Thomas Welcome. (Age 37, b. Lynnfield, Mass.) Graduated from the Lawrence Scientific School, degree of S. B., class 1898. Draftsman in office of E. D. Leavit, 1898-1899; from 1899 to 1901 with the I. P. Morris Co., Philadelphia; from 1901 to 1902, draftsman Planters' Compress Co.; from 1902 to 1903, draftsman in the office of H. S. Ferguson, Millinocket, Me. At present Hydraulic Engineer in charge of Diversion of Water of Penobscot River for Bangor Power Co., Penobscot Fibre Co. and International Paper Co. Refers to C. S. Clark, J. R. Freeman, J. H. Libbey and J. F. Osborn.

Enebuske, Carl Claesson, Boston, Mass. (Age 24, b. New York City). Educated at Waban Preparatory School, Newton, private schools at Paris, France, and from 1903-1908 studied at Lycée-Janson-de-Sailly. Since October 5, 1908, in the employ of J. R. Worcester & Co. and at present draftsman for that firm. Refers to G. H. Brazer, C. H. Dutton, E. E. Pettee and J. R. Worcester.

TWELFTH INTERNATIONAL CONGRESS OF NAVIGATION

The Permanent International Association of Navigation Congresses will hold its twelfth Congress the last of May at Philadelphia under the auspices of the President of the United States. This Association was organized for the purpose of the development of ocean and inland navigation, and in its membership of over 2000 are to be found the most eminent harbor, canal, railway and marine transportation engineers and managers of the world, all of the ports, especially Hamburg and Antwerp, being prominently represented.

The Chambers of Commerce of all the great cities of the world have one or more delegates to the general congresses which have been held in Brussels, Vienna, Frankfort, Manchester, Paris, The Hague, Duesseldorf, Milan and St. Petersburg, and this year for the first time, in the United States. It will

probably be the most important gathering of the great representatives of ocean and inland navigation that has ever taken place in this country.

The United States Government has appropriated $50,000 for the necessary expenses of the Congress. The Secretary of State has extended an official invitation for the Association to visit the United States. New York State, Philadelphia, Pittsburg, Chicago and other cities have appropriated sums from $15,000 to $50,000 for their local entertainment, and the American Society of Civil Engineers has accepted the responsibility of receiving and caring for the members of the Congress while they are in New York.

The Chamber of Commerce, Boston City Club and the Institute of Technology have already expressed their willingness to do their part, and this Society has appointed a Committee, Messrs. W. H. Jaques, I. N. Hollis and F. W. Hodgdon, to co-operate.

Further information can be obtained by addressing Mr. William H. Jaques, Room 701, Board of Trade Building, Boston.

MINUTES OF MEETINGS

JANUARY MEETING OF THE SOCIETY

Boston, January 24, 1912.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 8 o'clock, President Charles T. Main in the chair, 105 members and visitors present.

The record of the last meeting was read and approved.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:—Members, Clarence Lester Foster, Stephen Perkins Hurd and Morse Wooley Rew. Juniors, John Prescott Wentworth and Robert Emerson Parker. Associate, Frank Willis Clark.

The Secretary announced the death of the following members: Edward Sawyer who died Dec. 27, 1911, and Samuel Clarence Ellis who died Jan. 22, 1912, and by vote the Presi-

dent was requested to appoint a committee to prepare memoirs. The President has appointed the following as members of these Committees:—On memoir of Edward Sawyer, Messrs. Fred Brooks and C. F. Allen, and on memoir of S. Clarence Ellis, Messrs. Frank O. Whitney and F. M. Miner.

The Secretary read a letter from Mr. Allen Chamberlain, Clerk of the Committee on Legislature of the Appalachian Mountain Club, calling attention to bill before the Legislature relative to the sale of atlas sheets of the map of Massachusetts, and expressing the hope that the Society would take some action, looking to the amending of the bill so as to provide for the future sale of these sheets.

After an explanation by Past-President Howe it was *voted*:—That it is the sense of this meeting that House Bill No. 225 should not be passed in its present form and that it should be so amended as to provide for a continuation of the sale of these sheets at the State House. Mr. Howe was authorized by vote, to appear at any hearing which might be held in relation to this bill and represent the Society on the matter.

On motion of Mr. Edward W. Howe the President was requested to appoint a committee of three to report to the meeting the names of five members to serve at a committee to nominate officers for the ensuing year.

The President named as that Committee Messrs. E. W. Howe, R. A. Hale and R. S. Weston. This Committee reported later in the meeting the following names, and by vote of the Society, they were chosen as the Nominating Committee:—Henry D. Woods, Bertram Brewer, Dwight Porter, John N. Ferguson and William E. Foss.

The Secretary presented a memoir of George C. Dunne, late an associate of the Society, prepared by a committee consisting of F. A. Barbour, B. R. Felton and F. W. Clark. The memoir was accepted and ordered to be printed in the *Journal*.

Mr. W. H. Jaques brought to the attention of the Society the proposed meeting of the Permanent International Association of Navigation Congresses, which will be held in Philadelphia in May next. At the close of the Congress the delegates

will visit a number of the large cities of the country and arrangements have been made for their entertainment. The Chamber of Commerce, The Boston City Club and the Institute of Technology have already expressed their willingness to do their part in entertaining the delegates, and he suggested that the Boston Society of Civil Engineers appoint a committee to represent it in the entertainment of the visitors. By vote the President was requested to appoint such a committee to consist of three members. The President named as that Committee Messrs. William H. Jaques, Ira N. Hollis and Frank W. Hodgdon.

Mr. Edward S. Larned then read the paper of the evening, entitled "A Study of Sand for Use in Cement Mortar and Concrete." Mr. Larned also read, through the courtesy of the author, Mr. Cloyd M. Chapman, Engineer-in-Charge, Westinghouse, Church, Kerr Co., New York City, his paper entitled "Waterproofing with Water," presented at the National Association of Cement Users at their Seventh Annual Convention, December, 1910.

The papers were both illustrated by lantern slides. The papers were discussed by Messrs. Sanborn, Bryant, Adams, Larned and others.

Adjourned. S. E. Tinkham, *Secretary.*

FEBRUARY MEETING OF THE SANITARY SECTION

Boston, Mass., February 7, 1912.—A special meeting of the Sanitary Section of the Boston Society of Civil Engineers was held this evening at the Boston City Club. Dinner was served at 6.15 to 39 members and friends.

The meeting was opened at 7.30 by Chairman George A. Carpenter. It was announced that John P. Wentworth had been enrolled as a junior member of the Section. The chairman also stated his intention of appointing a committee to consider nominations for officers and committees for the coming year and report same at the annual meeting in March. Although this was somewhat informal, and subject to objections from the members, the chairman considered it was for

the best interests of the Section. No objections were offered.

The speaker of the evening was Mr. Ezra B. Whitman, at present Chief Engineer of the Baltimore Water Board, but formerly Engineer in charge of the design and construction of the Baltimore Sewage Disposal Works. He gave a very interesting description of the development of this great sewage disposal project. The Walbrook Experiment Station was briefly described, and tabulations were shown giving some of the results from the sprinkling filters and from the disinfection experiments. Plans and photographs were shown to illustrate the design and the construction methods employed on the Back River works. As this plant has been in operation but a short time, and, further, because there have been but few house connections made to the sewers and the sewage now being treated is largely ground water, it was impossible to give any operating results of value. Mr. Whitman used more than one hundred slides in illustrating his talk.

A number of gentlemen engaged in the discussion following the talk. A discussion on "Separate Sludge Digestion Tanks" was read by Mr. Charles Saville, and Mr. Frederic P. Stearns, one of the Consulting Engineers to the Baltimore Sewerage Commission, added further facts of interest. Mr. Harrison P. Eddy pointed out that the last few years had brought rapid advances in the science of sewage disposal, and that old opinions were being necessarily changed for new ones.

On motion of Mr. Eddy, seconded by Mr. R. S. Weston, it was voted to extend a vote of thanks to Mr. Whitman for his kindness in coming to Boston to give the talk which had been of great interest and value to all present.

The meeting was adjourned at 10.40 o'clock.

That considerable interest was aroused is shown by the fact that the majority of the 65 members and guests present, stayed until the meeting closed, although many were from out of town.

FRANK A. MARSTON, *Clerk.*

LIST OF MEMBERS

ADDITIONS

BRYANT, WILLIAM ALLEN ..... 61 Clark Rd., Brookline, Mass.
CLARK, FRANK WILLIS ..... 114 Belmont St., Somerville, Mass.

FOSTER, CLARENCE LESTER .....48 Hudson St., Somerville, Mass.
HURD, STEPHEN PERKINS .....Swampscott, Mass.
LANPHEAR, ROY STUART ...Cor. Rock and Myrtle Aves., Plainfield, N. J.
PARKER, ROBERT EMERSON .....55 Walnut St., Reading, Mass.
REW, MORSE WOOLEY .....Room 60, City Hall, Boston, Mass.
SKILLIN, FRED BURGESS .....37 Burnside Ave., W. Somerville, Mass.
WENTWORTH, JOHN PRESCOTT .....7 Park Ave., Malden, Mass.

CHANGES OF ADDRESS

ALDEN, H. K. .....Keokuk, Iowa
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BIGELOW, W. W. .....C|o J. R. Worcester, 79 Milk St., Boston, Mass.
BRIETZKE, C. F. .....328 W. 50th St., New York City
CALLAHAN, J. F., JR. .....29 W. 64th St., New York City.
CUTTING, G. W., JR. .....6 Beacon St., Boston, Mass.
DASHPER, F. C. .....General Delivery, San Francisco, Cal.
HAZELUM, T. R. .....187 Warren Ave., Boston, Mass.
HEALD, S. C. .....Greenville, N. H.
HORNE, H. W. ...Div. Engr. Bd. of Water Commissioners, Hartford, Ct.
MCCORKINDALE, R. I., C|o Parsons' Paper Co., Sargent St., Holyoke, Mass.
OAKES, J. J. .....Apartado No. 30, Santo Domingo, R. D.
PRATT, R. W. .....307 City Hall, Cleveland, Ohio
RICE, JAMES ....C|o E. G. Bennett, 1006 Jefferson St., Wilmington, Del.
STANFORD, H. R. ...Bureau of Yards & Docks, Navy Dept., Wash., D. C.
STORRS, H. A. .....820 Commercial Nat'l Bank Bldg., Chicago, Ill.
STRADLING, D. W., Asst. Prof. of C. E. University of Kansas, Lawrence, Kansas
TARBETT, R. E. .....14 Beacon St., Boston, Mass.
VAN RENSSELAER, ALLEN, 1004 Garbally Gardens, Fort St., Victoria, B. C.
WARREN, G. M. .....313 Travelers' Bldg., Richmond, Va.
WISEMAN, J. M. .....244 Massachusetts Ave., Arlington, Mass.

DEATH

ELLIS, S. CLARENCE .....January 22, 1912

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

MEN AVAILABLE

2. Age 39. Two years at Tufts College and one year at Mass. Inst. of Technology, taking a special course in Civil Engineering. From 1891 to 1894 with A. H. French, Brookline; from 1894 to 1897 with French & Bryant; from 1897 to 1902 with W. D. Hunter, Town Engineer of Melrose, Mass.; from 1902 to 1905 with French & Bryant; from 1905 to 1907 with Guy Lowell, Architect; from 1907 to 1908 with L. D. Thorpe; from 1908 to 1910, Resident Engineer on Piping Rock Estate, Oyster Bay, L. I.

95. Age 28. Graduate of Boston English High School and spent two years at the Institute of Technology. Two years as rodman in trolley and general surveying; one year as transitman on trolley construction; three years in charge of party on trolley location, surveys, etc., and for the past three years has been field engineer on trolley construction, supervising concrete work in bridges and buildings, machinery installation, pile driving, steel erection, dredging, grading, track work, catenary overhead system, and high tension line. Desires position as Engineer or Inspector.

96. Age 24. Graduate Dartmouth College and Thayer School of Civil Engineering. Nine months with the Aberthaw Construction Co., engaged in the erection of reinforced concrete factories, in the field; also miscellaneous work on surveys and drafting. Desires position as contractor's assistant, but will consider anything in the engineering line.

98. Age 23. Graduate of Boston High School and has had several years' individual study. Four years of outside work, including railroad location, construction and survey work, inspecting on concrete and building construction. Desires position as transitman or inspector.

LIBRARY NOTES

Book Reviews

A Treatise on Hydraulics. By Hector J. Hughes, A. B., S. B., and Arthur T. Safford, A. M. Pp. xiv., 497, 5 plates. New York: The Macmillan Co. (Gift of the authors).

This volume is intended as a text book for technical schools and colleges. The design of hydraulic motors and other hydraulic machinery are, however, not treated in the book. After treating of the elementary matters regarding pressure, buoyancy, and the flow of water, a chapter is devoted to the Pitot tube and pitometer, and a chapter to the Venturi meter. Nozzles and flow through fire hose are also treated in a lucid and authoritative manner. The chapters on the current meter, and the dynamic action of flowing water seem especially valuable. Altogether the book is well arranged and a good index makes the subjects easily accessible.

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RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Tide Marshes and Their Reclamation. Geo. M. Warren.

Producer—Gas Investigations. Fernald and Smith.

State Reports

Mass. Harbor and Land Commission, Annual Report for the Year 1911.

Pennsylvania Water Supply Commission Report.

City and Town Reports

Detroit, Mich., Annual Report of Water Commissioners for 1910-11.

Miscellaneous

Life of Charles B. Dudley. Memorial volume. Gift of American Society for Testing Materials.

Hydraulics with Tables. E. S. Bellasis.

Chronological Table of Boston Water Works. F. I. Winslow.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

Boston Transit Commission.—Section 2 of the Beacon Hill Tunnel, which section is under Boston Common, is now

finished except to complete the construction of the moving stairway exits leading up to the surface of Tremont Street and to cover the interior walls of the station with enameled tile.

New York, New Haven & Hartford Railroad. — Reconstruction of Cohasset Narrows Bridge, Buzzards Bay, to provide for double track. The bridge will consist of four plate girder fixed spans and one bascule draw span. Contract for superstructure has been awarded. Specifications and proposals for substructure now being prepared.

Boston & Maine Railroad.—ELIMINATION OF GRADE CROSSINGS AT WESTON.—The two span concrete arch bridge at Weston Station is completed. The single span concrete arch bridge at Cherry Brook Station is under construction. The approaches at both bridges are being graded.

The Boston Terminal Company.—Extension of South Station Office Building. Constructing foundations and erecting the extension.

Lawrence, Mass.—The Aberthaw Construction Company is building a 10,000 ton reinforced concrete coal pocket for the Pacific Mills' New Print Works Dept. Work is being steadily proceeded with in spite of the cold weather, the whole of the bin floors being now completed. The forms are erected for the upper walls and partitions and will be concreted this month.

Lowell, Mass. —The beam house for the American Hide & Leather Co. is practically completed, and the factory for the Lamson Consolidated Store Service Co. is nearing completion. The concrete work is finished and mason work and steel sash erection is going on.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

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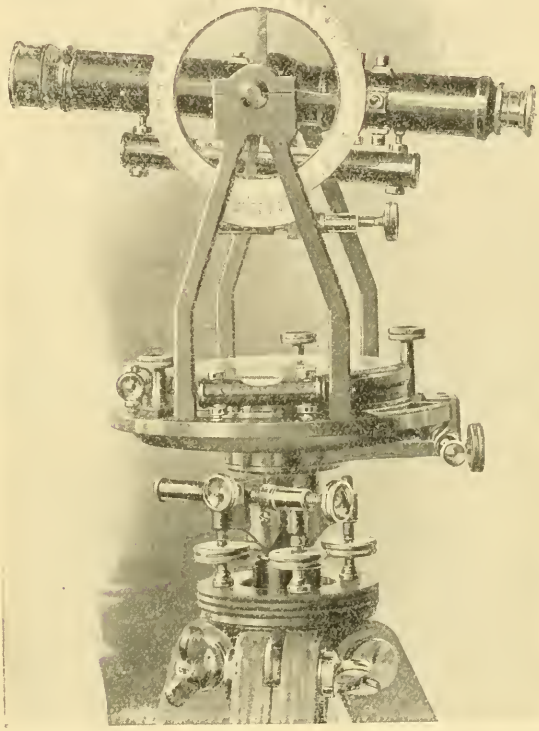

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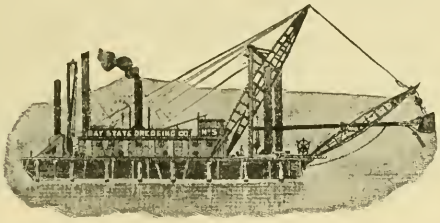

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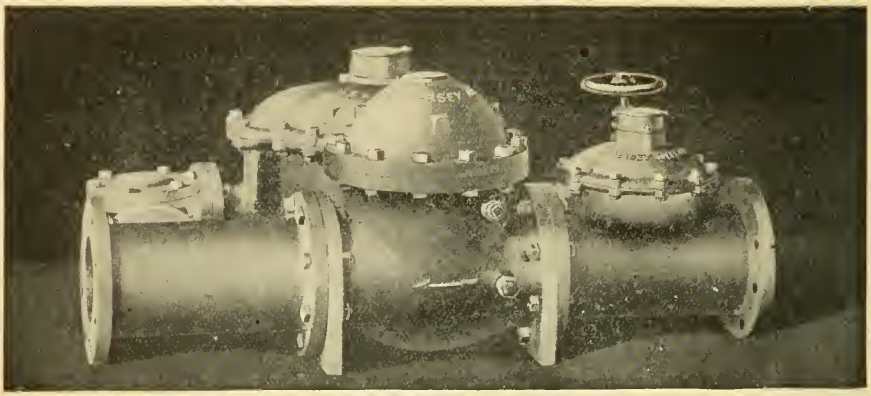

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MONTHLY BULLETIN.

NEW SERIES. MARCH, 1912 No. 60

SIXTY-FOURTH ANNUAL MEETING

The annual meeting of the Boston Society of Civil Engineers will be held at the Boston City Club, 9 Beacon Street, Boston, on Wednesday, March 20, 1912.

As previously announced the annual meeting this year will consist of three principal features: a business meeting at noon, the annual dinner in the afternoon and the smoker in the evening.

PROGRAM

Business Meeting.—The annual meeting required by the Constitution will be called to order at 12 o'clock M., in Rooms 4 and 5, on the third floor of the Club House.

BUSINESS.—Announcement of the election of new members.

To receive the annual reports of the Board of Government, of the Treasurer and of the Secretary.

To receive the annual reports of the several special committees.

To reappoint the several special committees.

Announcement of the result of letter-ballot for officers for the ensuing year.

Presentation of the Desmond FitzGerald Medal.

Address of the retiring President.

Annual Dinner.—The 30th annual dinner will be served at 2 o'clock P. M., in the Auditorium on the fourth floor of the Club House.

The price of tickets for the dinner will be $2.00 per plate. Members are at liberty to invite guests to the dinner as usual.

Mr. Long, who had accepted an invitation to address the Society at the close of the dinner, has been obliged to cancel the engagement. Other arrangements will be made which will ensure an interesting address.

The meeting will be open to those who do not find it convenient to attend the dinner.

Smoker.—An informal smoker will be held in the Auditorium, beginning at 7 o'clock P. M. For the past three years this feature of the Annual Meeting has been so thoroughly enjoyed by members and their guests that it has been decided not to make any material change in the program of last year. The exercises will be as informal as in the past; the music will be of the same character, the old songs and possibly some new ones will be sung, a short special entertainment will be given and light refreshments will be served.

The plan adopted for the last two years, which has proved very satisfactory, will be repeated this year, and each member is asked to contribute his share towards the expenses of the Smoker by purchasing a ticket, the price of which has been placed at $1.

Registration, Tickets and Badges

Members and guests who attend any of the functions of the annual meeting will find it more convenient to go directly to the third floor of the Club House, where special coat rooms will be provided for the exclusive use of the Society.

The rooms on the third and fourth floors which have been assigned to the Society for the annual meeting are entirely apart from the rest of the Club House used by its members.

Rooms 4 and 5 will be used as the Society headquarters continuously throughout the day and evening.

Each member is requested to register on cards provided for the purpose immediately on his arrival and to secure a badge which will be a means of identification throughout the meeting. They are also requested to register any guest whom they may introduce and to procure for him a special guest badge.

Members are urged to purchase at the time of registration the tickets they desire for the dinner and the smoker, as admission will be strictly by tickets for both members and guests.

The prices for tickets have been fixed as follows:

Dinner tickets	$2.00 each
Smoker tickets	1.00 each
Combination tickets for Dinner and Smoker	2.50 each

It is indispensable that the Committee be informed at as early date as possible how many will attend the several gatherings so that ample and satisfactory arrangements may be made. If a member finds that he can attend only the business meeting, it will help the Committee to know it in advance so that his badge may be prepared for him. The Committee, therefore, urges you most earnestly to fill out and mail at once the postal card already sent you stating your intentions.

C. T. MAIN,
J. W. ROLLINS,
C. W. SHERMAN,
S. E. TINKHAM,
Committee.

APPLICATIONS FOR MEMBERSHIP

[March 13, 1912]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the

Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Cheney, Herbert Neal. (Age 36, b. Lynn, Mass.) Graduated from Lawrence Scientific School, Harvard University, 1899. Employed from 1899 to present time by the Boston Consolidated Gas Co., at first as draughtsman, then Assistant Superintendent, after May, 1905, as Engineer in Charge, Calf Pasture Station, and since July 1, 1910, as Engineer of Construction. Refers to E. S. Dorr, F. H. Fay, J. A. Gould, S. E. Tinkham.

Fernald, Gordon Hildreth. (Age 29, b. Cambridge, Mass.) Graduated from the Northboro, Mass., High School in 1902. From 1902 to 1905 with Percy M. Blake, C. E.; from 1905 to 1906 Assistant Engineer with W. H. Cadwell, New Britain, Conn.; from 1906 to 1907 draftsman and assistant, A. T. & S. F. Ry.; from 1907 to 1908 Inspector and Assistant to Edmund M. Blake; from 1908 to 1909 same as 1906; from 1909 to 1910 Inspector, Cambridge Subway, Boston Elevated Ry. Co.; and from 1911 to the present date, Assistant Engineer Sewage Disposal Commission, Fitchburg, Mass. Refers to E. M. Blake, P. M. Blake, H. P. Eddy, D. A. Hartwell and L. B. Vaughan.

Fogg, Benjamin Greely. (Age 31, b. Gorham, Maine). Received degree of B. S. in Civil Engineering in 1908 at the Mass. Inst. of Technology. From July to Sept., 1902, draftsman with New Brunswick Coal & Railway Co.; from April, 1904, to May, 1906, Civil Engineer with Philippine Civil Government; from May to July, 1904, transitman on road location and construction; from July, 1904, to Jan., 1905, in charge of preliminary road survey, San Fernando & Angeles to Olongapo and Subig; from January to June, 1905, in charge of boundary and topographical survey, Iuahig Penal Reservation; from June to Oct., 1905, in charge of Pampanga River Survey; from October, 1905, to May, 1906, chief of party and acting in charge of Baguio tour site, and topograph-

ical survey; from October, 1906, to June, 1907, student Mass. Inst. of Technology; from Sept., 1907, to July, 1909, Instructor in Civil Engineering at Pennsylvania State College; from 1909 to date, with Aberthaw Construction Co., Boston. Refers to C. B. Breed, A. B. McMillan, E. D. Walker and L. C. Wason.

Taylor, George. (Age 36 b. Athens, Ontario). Started to work for Eastern Expanded Metal Co. in 1898 in the office. From 1902 to 1905 was General Superintendent of Construction; from 1905 to present time General Manager of the Company; from 1908 to 1910 was also General Manager of the Eastern Concrete Construction Company. Refers to W. M. Bailey, C. R. Gow, C. J. Hogue, L. L. Street and W. O. Wellington.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

99. Graduate Newton High School and Dartmouth College. Experience only that connected with the Engineering School. Desires position as rodman, transitman or levelman.

100. Age 22. Graduate Boston English High School. For the past two years has been employed as instrument-man. Has had experience in staking out lots, giving line and grade for construction, setting batter boards, land court surveys, topographical surveys, railroad location, concrete construction, piling, pipe lines, etc. Engaged as inspector on construction of dam, also as inspector on pipe line, and as piling inspector. Can perform all necessary calculations, and can plot and trace. Desires position as instrument-man or inspector.

MINUTES OF MEETING

FEBRUARY MEETING OF THE SOCIETY

Boston, Mass., February 21, 1912.—A regular meeting of the Boston Society of Civil Engineers was held this evening at

Chipman Hall, Tremont Temple, at 7.50 o'clock. Vice-President James W. Rollins in the chair, 65 members and visitors present.

The record of the last meeting was approved as printed in the February *Bulletin*.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:—*Member*: Henry Manley, Jr., and David S. Reynolds. *Junior*: Thorndike Saville.

The Secretary presented the report of the Committee (Mr. Andrew M. Lovis) appointed to prepare a memoir of our late associate, Lyman L. Gerry, and on motion the report was accepted and ordered printed in the *Journal*.

On motion of Mr. Gow the thanks of the Society were voted to The Concrete Engineering Company for courtesies extended to members of the Society who attended the excursion to the work now under construction by that Company in East Boston.

The Secretary announced that the annual meeting would be held at the Boston City Club on March 20th and that the dinner and other functions would be similar to those of the last two years.

Prof. Charles M. Allen was then introduced and gave a very interesting talk on "Uses and Abuses of Gasoline and Kerosene." The talk was illustrated by a large number of experiments showing the dangers connected with the handling of these fluids.

Adjourned. S. E. TINKHAM, *Secretary*.

BOSTON, MASS., December 12, 1911.—A special meeting of the Boston Society of Civil Engineers was held at the Boston City Club this evening and was called to order by the President, Charles T. Main, at 7.45 o'clock. There were 150 members and visitors present. Prof. Frank P. McKibben of the Lehigh University read a very interesting paper on "The Engineering

Features of the Austin Dam" which was fully illustrated by lantern slides.

A general discussion followed the reading of the paper.

Adjourned. S. E. TINKHAM, *Secretary*.

BOSTON, MASS., February 28, 1912.—A special meeting of the Boston Society was held this evening at the Boston City Club, at 7.30 o'clock, President Charles T. Main in the Chair, 160 members and visitors present. An informal dinner preceded the meeting at which 86 were present.

Baurat Wendemuth, the dock expert at Hamburg who has been called to Boston to consult with the Directors of the Port, was the principal guest of the evening. He addressed the Society briefly, expressing his appreciation of the honor shown him in Boston, and was followed by Mr. Andreas G. Hartung, his assistant, who described the harbor improvements of Hamburg.

Messrs. F. W. Hodgdon, J. R. Freeman and O. F. Clapp of the Society, and Mr. William T. Donnelly of the American Society of Mechanical Engineers, spoke interestingly of harbor and dock work.

Adjourned. S. E. TINKHAM, *Secretary*.

ANNUAL MEETING OF THE SANITARY SECTION

BOSTON, MASS., March 6, 1912.—The annual meeting of the Sanitary Section of the Boston Society of Civil Engineers was held this evening at the Boston City Club. Dinner was served at 6 o'clock to 26 members and friends. Following the dinner, the business meeting was opened at 7.30 o'clock with Chairman George A. Carpenter presiding.

The minutes of the previous meetings were declared approved as printed in the *Bulletins*.

The report of the Committee on "Rainfall and Run-Off from Sewered Areas" was read by H. P. Eddy, Secretary of the Committee.

On motion of C. W. Sherman and duly seconded, it was voted, that the report be accepted and the Committee continued.

On motion of H. P. Eddy and duly seconded, it was voted that the name of George C. Whipple be added to the membership of this Committee.

Notice was given that Mr. Edgar S. Dorr had a number of interesting charts showing the intensity of rainfall observed over small areas. These were placed on exhibition after the meeting.

The report of the Committee on "The Collection and Tabulation of Sewerage Statistics" was read by H. P. Eddy, Chairman of the Committee.

On motion of W. S. Johnson, duly seconded, it was voted, that the report be accepted, the recommendations be adopted and the Committee discharged.

The report of the Committee on "Uniform Specifications for the Manufacture of Sewer Pipe," was read by Leonard Metcalf, Chairman of the Committee.

A motion was made by R. S. Weston, and seconded, that the report be accepted and the Committee continued. It was so voted.

The report of the Executive Committee was read by the Clerk.

On motion of Leonard Metcalf, duly seconded, it was voted to accept this report.

Nominations were received for officers and committees to serve for the ensuing year as follows:—

Chairman:—George C Whipple.

Vice Chairman:—X. Henry Goodnough.

Clerk:—Frank A. Marston.

Additional members of the Executive Committee:—Almon L. Fales, Lewis D. Thorpe, Erastus Worthington.

On motion of C. W. Sherman, duly seconded, it was voted that the polls be closed and that the Chairman be authorized to cast one ballot for the officers and members of the Executive Committee as nominated.

As there was no further business to be transacted the meeting proceeded to the literary program.

The Chairman introduced Mr. Leonard Metcalf who gave an informal talk on "Some Sewage Disposal Plants in Germany, France and England," which he visited during the past Fall. The talk was illustrated by a large collection of slides showing structural details of the more recent plants for the purification of sewage. Mr. Metcalf compared the work done by the Imhoff tanks with that done by the Travis tanks and various screening plants. The inodorous character of the sludge from the Imhoff tanks was also discussed. One of the most interesting and latest plants described was that for the City of Paris at Carriére-Triel. Among the German plants illustrated were the North Essen, Recklinghausen, Bochum, Stoppenberg, Cöpernick, Hagen, Wilmersdorf, Unna and Hamburg. The Parisian plant at Achéres, and the English works at Birmingham, Yardley and Norwich were also shown.

Following the talk, Chairman George A. Carpenter made a few closing remarks and then introduced the new Chairman, George C. Whipple. The meeting adjourned at 9.30 o'clock. The attendance was 40.

FRANK A. MARSTON, *Clerk.*

LIST OF MEMBERS

ADDITIONS

MANLEY, HENRY, JR.....116 Mt. Vernon St., West Roxbury, Mass.
REYNOLDS, DAVID S.....85 Mountfort St., Boston, Mass.
SAVILLE, THORNDIKE.....4 Matthews Hall, Cambridge, Mass.
TOBIN, JAMES J.....43 E. Newton St., Boston, Mass.

CHANGES OF ADDRESS

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BROWN, W. M.....1288 Commonwealth Ave., Allston, Mass.
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HOGUE, C. J.....1104 Oliver Bldg., Boston, Mass.
HORNE, H. W.....New Hartford, Conn.
JERRETT, ROBERT.....246 Massachusetts Ave., Providence, R. I.
KIMBALL, F. C.....P. O. Box B, Summit, N. J.

PERKINS, T. P.....B. & M. R. R., North Station, Boston, Mass.
RUSSELL, J. B.....77 Hobson St., Brighton, Mass.
STARR, J. A.....148 Irving St., Watertown, Mass.
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RECENT ADDITIONS TO THE LIBRARY

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Interstate Commerce Commission, Annual Report for 1910-1911.

Coast and Geodetic Survey, Annual Report for 1910-1911.

State Reports

Connecticut Railroad Commissioners, Annual Report for 1911.

Michigan Board of Health, Annual Report for 1910.

City and Town Reports

Leominster, Mass., Annual Report of Water Board for 1911.

Manchester, Mass., Special Report on Sewerage. Desmond FitzGerald.

New Bedford, Mass., Annual Report of Water Commissioners for 1911.

North Adams, Mass., Annual City Report for 1911.

Northampton, Mass., Annual Report of Water Commissioners for 1911.

Reading, Mass., Annual Report of Water Commissioners for 1911.

Miscellaneous

National Irrigation Congress, Proceedings for 1911.

Soil Survey of Marietta Co., Wisconsin. Weidman and Wood.

Soil Survey of N. W. Wisconsin.

Engineering Index, Annual for 1911.

Sewage Sludge. Elsner, Spillner and Allen.

Railway Conquest of the World. F. A. Talbot.

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NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, Richard K. Hale, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.— METROPOLITAN WATER WORKS.—Work has begun on the extension of the Water Pipe tunnel at Chelsea Bridge North over the Mystic River. This work is made necessary by the rebuilding of the bridge, and is to be done by pneumatic process.

Work will be resumed on the construction of foundations for the Hyde Park Pumping Station about the end of the month. This station is to be located on the land of the Commonwealth on Hyde Park Avenue in Hyde Park, near the former Boston boundary line.

METROPOLITAN PARK COMMISSION.—*Charles River Reservation, Lower Basin.*—Contract for re-paving roadway on Charles River Dam advertised for bids, to be received March 18, 1912.

Boston Transit Commission.—The Beacon Hill Tunnel for the Cambridge Connection is now practically completed and will shortly be opened for public travel.

Bids for the construction of Section 1 of the Boylston Street Subway will be opened March 12th. This section extends from Kenmore Street to near the centre of Massachusetts Avenue and is located in Commonwealth Avenue, Charlesgate West, Fenway, Charlesgate East and Newbury Street, a distance of about 1,900 linear feet. The structure is to be mainly of concrete reinforced with steel rods.

New York, New Haven & Hartford Railroad.—Reconstruction of Cohasset Narrows Bridge, Buzzards Bay, to provide for double track. The bridge will consist of four plate girder fixed spans and one bascule draw span. Contracts have been awarded and contractors about to begin work.

Boston & Maine Railroad —ELIMINATION OF GRADE CROSSINGS AT WESTON.—The two span concrete arch bridge at

Weston Station is completed. The single span concrete arch bridge at Cherry Brook Station is under construction. The approaches at both bridges are being graded.

North Billerica, Mass.—Plans have been prepared for Locomotive and Car Repair Shops, situated near North Billerica, Mass. Capacity to be thirty (30) locomotives and one hundred and eighty (180) passenger cars per month. Contract let to Wilson & English Construction Company for grading and their work is 55% done.

Award has been made to McClintic-Marshall Construction Company for all steel work which will be completed and erected June 1st.

The Boston Terminal Company.—Extension of South Station Office Building. Foundations completed and extension being rapidly constructed.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Argentine Battleship Rivadavia.
U. S. Torpedo Boat Destroyer Shenley and Duncan.
Submarine Boats Haddock, Cachalot, K-5, K-6.
U. S. Battleship Nevada.
Sulphur Str. Frieda for Union Sulphur Co.
Molasses Str. Nelson for Union Sulphur Co.
Standard Oil Steamer for Standard Oil Co.
Fire Boat for Smith Watson Iron Works.

Cape Cod Canal.—The work of canal construction has gone forward with somewhat reduced output on account of severe weather conditions in January and February. Throughout these months two steam shovels and one dredge were continuously at work and they have now been reinforced with two additional dredges. Work in Buzzards Bay channel, which is about two-thirds completed, will be resumed during March. There is continuous scow channel now dredged from the entrance at Wings Neck Light into the Monument River eastward to near the village of Bourne.

At the easterly end of the canal, 2½ miles of channel are completed from the mouth westward past the village of Sagamore. It is expected by May 1st to place two new dipper dredges with ten yard buckets, which are now under construction, at work in the headings at either end, using the existing plant for deepening and widening behind them.

Breakwater work was discontinued during the winter but will shortly be resumed, and it is expected to complete it during the coming summer.

The necessary reconstruction of the tracks of the Old Colony Railroad, including three miles of new Main Line is practically completed except for grading at the new stations. This work is under way at Buzzards Bay and is nearly done. On the completion of the Bourne and Bournedale station grounds, the new line will be put in operation and the old tracks inside of the canal location discontinued.

Work will shortly commence on foundations for the new steel highway bridge at Sagamore, and the necessary additional roads parallel to the canal line, connecting the bridges will be completed this year. It is also expected to place additional plant in the central section so as to have continuous channel open by the end of the year.

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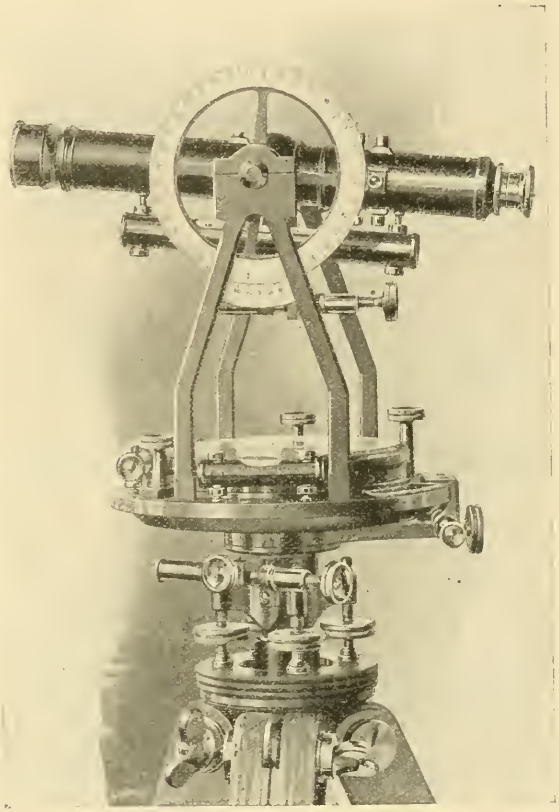

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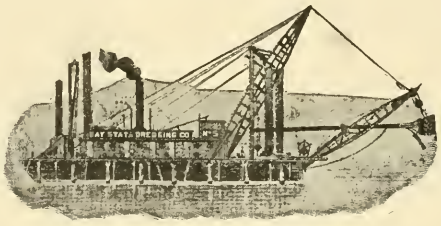

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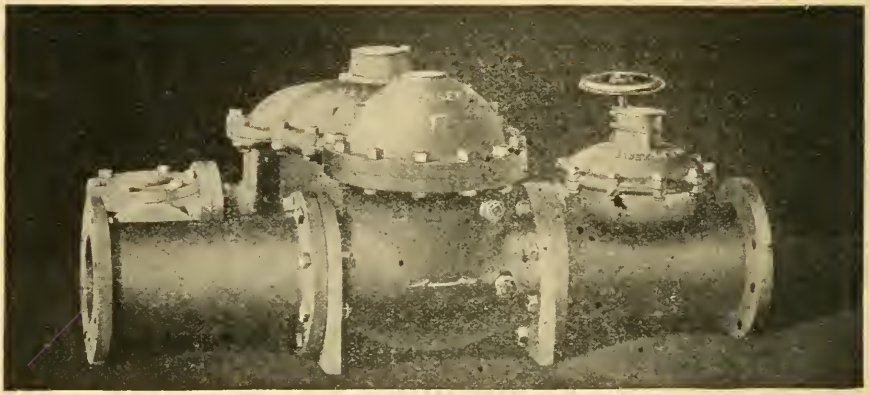

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BOSTON SOCIETY OF CIVIL ENGINEERS.
ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. APRIL, 1912 No. 61

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN

April 17, 1912. Regular meeting in Chipman Hall at 7.30 P. M. Paper by Mr. Arthur W. Dean on Massachusetts State Roads.

April 17, 1912. Excursion to examine pile work on Massachusetts Avenue, Dorchester, at 2 o'clock P. M.

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, April 17, 1912, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting: To receive a report from the Board of Government in relation to quarters for the Society with the proposed Engineers Club at the corner of Arlington Street and Commonwealth Avenue. The Board will recommend that it be authorized to lease the proposed auditorium of the Engineers Club together with stack room, library and offices on the two floors immediately above, and to pay therefor not exceeding $2500. per year under such terms of use and occupancy as may be acceptable to the Board; or to make some other equally satisfactory arrangement.

Mr. Arthur W. Dean, Chief Engineer, Massachusetts Highway Commission, will read a paper entitled "The Construction and Maintenance of State Roads in Massachusetts."

EXCURSION, APRIL 17, 1912

Through the courtesy of the Stone & Webster Engineering Corporation, No. 147 Milk Street, Boston, the members of this Society are to be given an opportunity to inspect the installation of some unusually heavy pile foundation work now being executed by that firm at Massachusetts Avenue, Dorchester, near the railroad crossing of the Midland Division of the New York, New Haven & Hartford Railroad.

The above corporation has under construction at this place some six buildings, totalling in area about three and one-quarter acres, to be used upon completion as a general service headquarters of The Edison Electric Illuminating Company.

At the present time work is proceeding on the foundations which involve the driving of piles at all points, many of them being of great length. Both wooden and concrete piles are being used.

The wooden piles are of spruce for the shorter lengths and of long leaf Southern pine for the longer lengths. The maximum length of wooden pile is 80 feet and a special driver has been built on the work to handle them which is nearly 100 feet in total height. This is believed to be the largest pile driver ever used in this locality. A drop hammer weighing 4,300 pounds is used with this machine. A second machine for driving the spruce piles is at work and uses a 2,500-pound drop hammer.

About 9,000 linear feet of concrete piles are being driven in one portion of the plant. They are the "Raymond" type and are being driven by George W. VanVranken of Schenectady, N. Y., who is the licensee under the "Raymond" patents for this district.

The "Raymond" type of concrete pile which is well known in this vicinity, consists of a comparatively light sheet iron shell made up of a series of tapering sections which, when joined together, telescope fashion, gives a continuous tapered form of the desired length and shape of the pile. This sheet iron form is driven by inserting in it a collapsible steel core, the whole being driven as a solid pile. The steel core is then collapsed and withdrawn and the sheet iron form which remains in the ground is filled with concrete.

In the case of this work some entirely new and novel

features are being used. To prevent the collapsing of the light shells in the ground during the interval between the withdrawing of the core and the filling with concrete the sheet iron sections are made with a small outside spiral corrugation. This feature not only adds strength to resist the crushing pressure of the surrounding earth but also adds considerably to the skin friction of the pile itself.

The inside recess formed by this corrugation is utilized to contain a spiral wire which serves as a hoop reinforcement when the concrete is placed.

These concrete piles are of varying length from 30 to 40 linear feet and taper from 6 inches and 8 inches at the tips to 20 inches diameter at the top. They are driven by a specially constructed pile driver using a 5,000-pound "Vulcan" steam hammer.

In view of the unusual features embraced by this work as well as its accessibility, it is hoped by your committee that all members interested in foundation matters will avail themselves of the opportunity offered. It is especially urged that the student members of the Society make an effort to attend as in all probability no better practical demonstration in this line will be afforded them.

Members will meet at the site of the work at 2.00 P. M. on Wednesday, April 17. Take Elevated to Northampton Street Station and change to surface cars going east on Northampton Street to Edward Everett Square via Massachusetts Avenue. Get off just beyond overhead railroad bridge.

EXCURSION COMMITTEE.

APPLICATIONS FOR MEMBERSHIP

[April 10, 1912]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which

will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Charles, Walter Nathan. (Age 35, b. Boston, Mass.) Graduate, Mass. Inst. of Technology in 1900. From 1900 to 1903 with City of Newton as instrumentman, chief of party and inspector on sewer, highway and reservoir construction; from 1903 to 1904 with the Metropolitan Water Board as office man and inspector on aqueduct, reservoir and dam construction; from 1904 to 1905 inspector of trunk sewer construction in tunnel and open cut, Revere, Mass.; 1905 to 1910 with Charles River Basin Commission, one year as inspector on pile and concrete foundations, one year as office man, and three and one-half years in charge of office work and calculations as assistant engineer; 1910 in charge of transit survey and altitude observations at Boston-Harvard Aviation Meet; 1910 to 1911 inspector of construction of dam and powerhouse for hydroelectric plant at Bonny Eagle, Me.; also inspector on reservoir construction, Pittsfield, and at present civil engineer, with office in Boston. Refers to J. N. Ferguson, D. P. Kelley, J. H. Kimball, H. A. Miller, J. W. Rollins and H. R. Stearns.

Connolly, S. John. (Age 26, b. Beverly Farms, Mass.) Educated in the Beverly public schools, Holy Cross College and the Lawrence Scientific School at Cambridge. During the summers of 1898 to 1903 worked on construction work with Connolly Brothers of Beverly Farms, as rodman, charge of grading, sewers and road work. From 1904 to 1907 with Whitman and Howard, Civil Engineers and Surveyors, Boston; in charge of work on surveys and construction on private and public works, surveys of proposed street railways and street layouts, and general civil engineering and surveying. From 1907 to present time constructing engineer for Connolly Brothers, Contractors and Builders. Refers to R. C. Allen, W. L. Blossom, H. F. Bryant, C. A. Fritz, W. C. Hawley and Channing Howard.

Harty, Arthur John Westmoreland. (Age 37, b. Fort Steward, Jamaica.) Educated at University of Cambridge, Eng., and at the Mass. Inst. of Technology. From 1893 to 1895 rodman and draftsman with E. A. Buss; 1895 to 1899 transitman and assistant to Road Master, C. M. Ry. Co., Columbia, S. A.; 1900 to 1902 with Stone & Webster as draftsman; 1903 to 1904 with Hood Rubber Co., in charge of construction; 1905 to 1906 with Whitman & Howard; 1907 to 1909 in private business, had charge of locations and as superintendent of construction for five months, power plant in Berwick, Me.; 1910 to present date, with C. H. Tenney & Co. Refers to H. F. Bryant, H. O. Butler, Channing Howard and A. I. Negus.

Mason, Franklin L. (Age 66, b. Waterford, Me.) In early life learned the mason's trade. Was foreman, subsequently contractor and builder at Providence, R. I. In 1888 was foreman of masonry for the West End St. R. R. and for several years with that company, the latter part as inspector of construction of car houses. From 1902 to 1905 on State work at Clinton; 1905 to 1910 on the Charles River Basin Works; 1910 to 1911 with Metropolitan Water Board on the Newton Tunnel. Refers to R. C. Aiken, J. N. Ferguson, Clifford Foss, J. L. Howard, H. A. Miller and T. F. Richardson.

McConnell, Ira Welch. (Age 41, b. Schell City, Mo.) Received degree of civil engineer from Cornell University in 1897. Has been employed as contractor's foreman, instructor in civil engineering at Cornell University and rodman U. S. Navy Yard, Brooklyn. In 1901 superintendent of construction for Indianapolis Water Works on new pumping station. From 1901 to 1903 field superintendent for Nash & Dowdle, General Contractors, Chicago and New Orleans; in 1903 Professor of Civil Engineering, Missouri School of Mines; June 1903 to October 1907 Project Engineer, U. S. Reclaimation Service; October 1907 to August 1909, Supervising Engineer U. S. Reclaimation Service; August 1909 to June 1910 Chief Irrigation Engineer J. G. White & Co., Inc.; June 1910 to February 1912, Vice-President and General Manager, Idaho Irrigation Company, Limited. At present employed by Stone & Webster Engineering Corporation. Refers to N. C. Grover, C. W. Sherman, F. P. Stearns and H. A. Storrs.

Moody, Herbert Albion. (Age 35, b. Biddeford, Me.) Graduate University of Michigan, Engineering Department, in Mechanical Engineering in 1898. From 1898 to 1899 in the drafting department of the Morton Mfg. Co., Muskegon, Mich.; 1899 to 1900 with the Central Paper Co. at Muskegon, Mich., as draftsman and engineer; 1900 to 1904 engineer on construction with the Union Bag & Paper Co., Sandy Hill, N. Y.; 1904 to 1905 member of the firm of Fairbanks & Moody, consulting engineers and mill architects; 1907 to 1909 chief engineer, construction department, Union Bag & Paper Co., Hudson Falls, N. Y.; 1909 to 1911 consulting engineer, Hudson Falls, N. Y.; and since May 1911 consulting engineer and mill architect, Boston. Member of American Society of Mechanical Engineers. Refers to R. A. Hale, G. W. Mansur, W. E. Noble and A. T. Safford.

MINUTES OF MEETING

Boston, Mass., March 20, 1912. — The annual meeting of the Boston Society of Civil Engineers was held at the Boston City Club, 9 Beacon Street, at 12.20 o'clock P.M., President Charles T. Main in the chair.

The record of the last meeting was read and approved.

The Secretary reported for the Board of Government that the following candidates had been elected to membership in the grades named:

Members — Lester H. Allen and Thomas W. Clark.

Junior — Carl C. Enebuske, Jr.

The Secretary read the annual report of the Board of Government and by vote it was accepted and placed on file.

The Treasurer read his annual report and by vote it was accepted and placed on file.

The Secretary read his annual report and by vote it was also accepted and placed on file.

Mr. R. E. Hale, for the Committee on Excursions, read the annual report of that committee, which was accepted and placed on file.

The Librarian read the annual report of the Committee on the Library and by vote it was accepted and the recommendations adopted by which the sum of $60 was appropriated for the purchase of current engineering books and the sum of $30 appropriated for a plan case.

On motion duly made and seconded, it was voted to refer to the Board of Government, with full powers, the question of appointing the special committees of the Society and the selection of the members thereof.

The tellers of election, appointed by the President, Messrs. H. E. Sawtell and M. T. Whiting, submitted their report giving the result of the letter ballot.

In accordance with this report the President announced that the following officers had been elected:

President — James W. Rollins.

Vice-President (for two years) — William S. Johnson.

Secretary — S. Everett Tinkham.

Treasurer — Charles W. Sherman.

Directors (for two years) — Charles M. Spofford and Robert Spurr Weston.

The President called upon Mr. FitzGerald, chairman of the committee appointed to select the best paper read before the Society and published for the year ending with the month of September, 1911. Mr. FitzGerald responded very graciously to the request and after briefly alluding to the pleasure it gave the donor of the medal to be the means of providing the Society with it, presented the first Desmond FitzGerald Medal in the name of the Society to Charles Rice Gow for his paper entitled, "Methods and Costs of Construction of the Slow Sand Purification Works for the new Springfield, Mass., Water Supply." Mr. Gow in accepting the medal thanked the Society not only for the medal but for the honor accorded him in selecting his paper for the prize.

At the request of the President, Mr. Bryant made a verbal report in regard to the Engineers Club of Boston. Mr. Bryant exhibited plans showing the arrangement of rooms in the Club House at the corner of Commonwealth Avenue and Arlington Street, and spoke particularly of the rooms which had been arranged for the library and meeting room for the Society.

The retiring President, Mr. Charles T. Main, then delivered an address entitled, "The Work, Aim and Conduct of the Engineer," which is printed in the March, 1912, JOURNAL OF THE ASSOCIATION OF ENGINEERING SOCIETIES.

On motion duly made and seconded, it was voted to request the Board of Government to appoint a committee of five to consider the question of a code of ethics for the Society, as suggested in the address of the President.

The members then adjourned to the auditorium of the City Club where members and guests to the number of 144 sat down to the Thirtieth Annual Dinner.

After the dinner, President Main introduced the President-elect, Mr. James W. Rollins, who thanked the members for the honor they had conferred upon him in his election to the presidency of the Society and assured the members that he would endeavor to discharge the duties of the office to the best of his ability.

Past-President John R. Freeman then gave a very interesting address illustrated by a large number of lantern slides describing a visit he had made to the City of Mexico for the purpose of examining the water supply of that city.

In the evening a "Smoker" was held in the auditorium of the City Club at which the attendance was over 300. The gathering was of the same informal character as those of former years, light refreshments being served and music furnished by an orchestra, and a vaudeville entertainment was added to the features of former years.

S. E. TINKHAM, *Secretary.*

ANNUAL REPORT OF THE BOARD OF GOVERNMENT FOR THE YEAR 1911–12.

BOSTON, MASS., March 20, 1912.

To the Members of the Boston Society of Civil Engineers:

In compliance with the requirements of the Constitution, the Board of Government submits its report for the year ending March 20, 1912.

At the last annual meeting the total membership of the Society was 797, of whom 746 were members of the Society, 9 juniors, 2 honorary members, 23 associates and 17 were members of the Sanitary Section only.

During the year the Society has lost a total of 43 members, 19 by resignation, 19 by forfeiture for non-payment of dues, and 5 have died.

There has been added to the Society during the year a total of 51 members of all grades; 47 have been elected and 4 reinstated.

The present membership of the Society consists of 2 honorary members, 742 members, 21 juniors, 24 associates and 17 members of the Sanitary Section only, making a total membership of 806, a net gain of 9.

The record of the deaths during the year is:

George C. Dunne, died May 23, 1911.
Lyman L. Gerry, died July 15, 1911.
Edward W. Hadcock, died October 10, 1911.
Edward Sawyer, died December 27, 1911.
S. Clarence Ellis, died January 22, 1912.

Ten regular and three special meetings have been held during the year. The average attendance at the regular meetings was 155 as against 138 last year, the largest being 350 and the smallest 35.

The following papers and talks have been given at the meetings:

March 15, 1911. — George F. Swain, W. S. Murray and Dugald C. Jackson, "The Electrification of the Steam Railroads in the Boston Metropolitan District." (Illustrated.)

April 5, 1911 (special students' meeting). — George B. Francis "The Engineering Features of Pennsylvania Terminal Station in New York City." (Illustrated.)

April 19, 1911. — Edwin J. Beugler, "Some Byways in Turkey." (Illustrated.)

May 17, 1911. — Fred M. Kimball, "The Electric Motor in the World's Work." (Illustrated.)

September 20, 1911. — T. Howard Barnes, "Pile Protection," and an informal talk on "Guatemala and Her People from a Wayfarer's Point of View." (Illustrated.)

October 18, 1911. — Fred A. Wallace, "Power System of the Pacific Mills, Methods and Rules for, and Cost of Operation." (Illustrated.)

November 15, 1911. — Charles L. Norton, "Some Refractory Substitutes for Wood." (Illustrated.)

December 12, 1911 (special). — Frank P. McKibben, "The Engineering Features of the Austin Dam." (Illustrated.)

December 20, 1911. — W. L. R. Emmett, "Electric Propulsion of Ships." (Illustrated.)

January 24, 1912. — Edward S. Larned, "A Study of Sand for Use in Cement Mortar and Concrete." (Illustrated.)

February 21, 1912. — Charles M. Allen, "Uses and Abuses of Gasoline, Kerosene, Etc."

February 28, 1912 (special). — Discussion on Harbor and Dock Improvements by Bauret Wendemuth and others.

The Sanitary Section of the Society has had four meetings during the year, with an average attendance of 44.

The papers read at the meetings of the Section were:

March 1, 1911. — Frank A. Barbour, "The Hudson Sewage Disposal System and the Disastrous Effects of Wool Waste." (Illustrated.)

March 1, 1911. — Robert Spurr Weston, "The Disposal of Manufacturing Waste." (Illustrated.)

December 6, 1911. — Louis K. Rourke, "A Talk on the Panama Canal." (Illustrated.)

December 6, 1911. — Andrew J. Provost, Jr., "Sanitation of Construction Camps along the Catskill Aqueduct." (Illustrated.)

December 6, 1911. — William W. Locke, "Sanitation of the Contractor's Camps in the Wachusett Basin." (Illustrated.)

January 3, 1912. — Edward Hutchins, "The Disposal of Paper Mill Waste." (Illustrated.)

February 7, 1912. — Ezra B. Whitman, "The Baltimore Sewage Disposal Works." (Illustrated.)

The following paper presented to the Section by title was accepted and published in the JOURNAL for April, 1911:

"The Use of the Salinometer in Studies of Sewage Disposal by Dilution." By Kenneth Allen.

On April 5, 1911, a special meeting was held at the Boston City Club, at which the students in the civil engineering courses at Harvard, Tufts and the Institute of Technology were the guests of the Society, about 300 being present. Past President George B. Francis gave an illustrated talk on "The Engineering Features of the Pennsylvania Terminal Station in New York City," and a social hour followed, enlivened by college songs.

The regular June meeting this year took the form of a dinner at the Inn, Sterling, Mass., at the end of a delightful automobile trip to the various works of the Metropolitan Water Works. It has always been difficult to secure a fair attendance at an evening meeting held at the time of the long days in June, and the change made this year, holding the meeting during an outing, was most thoroughly enjoyed by those who were able to attend.

For the regular meetings held in October, November and December, a new departure was made this year, the members of the American Society of Mechanical Engineers and of the Boston Section of the American Institute of Electrical Engineers joining in these meetings, each society having charge of one meeting. This Society conducted the meeting in October, the Mechanical Engineers in November, and the Electrical Engineers in December. While this arrangement interfered slightly with the business of the Society conducted at a regular meeting, the plan has the advantage of combining engineering meetings in Boston and enabling our members to listen to valuable papers secured by the other societies.

The third dinner of the engineers of Boston, under the joint management of the American Society of Mechanical Engineers, the Boston Section of the Electrical Engineers and this Society, was held at the Hotel Somerset on January 15, 1912, the particular arrangement this year falling upon this Society. The attendance was 400, and it was as enjoyable an occasion as those of former years.

Through the generosity of our former president, Desmond FitzGerald, the Board has the pleasure of awarding a prize for the best paper published by the Society for the year ending with the month of September, 1911.

Under the rules governing the award of the Desmond FitzGerald Medal, adopted by the Society, a committee of three appointed by the Board has recommended, and the Board has adopted, the recommendation, that the medal this year be awarded for the paper entitled, "Methods and Costs of Construction of Slow Sand Purification Works for the new Springfield, Mass., Water Supply," by Charles R. Gow.

The Board desires to congratulate the Society upon the very beautiful and artistic design which the donor has secured for the medal, and to express its appreciation of the time and labor which Mr. FitzGerald has spent in its preparation.

After more than two years' work, the general committee appointed from the various societies and organizations have evolved a plan for an Engineers' Club, which promises to be a success.

The owner of the property at No. 2 Commonwealth Avenue has made a proposition to remodel the building so that it will be suitable for a club and a home for the Boston Society of Civil Engineers, and to lease it to the Club, with an option to be purchased in the future.

When this property became available, a sufficient number of men signed the necessary papers to obtain a charter, and the club was organized.

The Board of Governors hold weekly meetings to elect new members and to transact business, and on March 14 there have been elected 329 resident and 66 non-resident members, with no great endeavor to induce any one to join, and it is expected that the full membership of 500 resident and 200 non-resident members will soon be reached.

This Club will meet a long-felt need for better social relations between engineers and others engaged in or connected with scientific pursuits.

The present quarters of the Boston Society of Civil Engineers have been outgrown, and new and more commodious quarters must soon be obtained. The Society is now a tenant-at-will and can move by giving six months' notice.

Provisions are being made in the plans of the Engineers' Clubhouse for accommodating the Society, and it is hoped that the Society will find a more permanent home in this building.

The accommodations planned for the Society are to have an assembly hall capable of seating about two hundred, provision for the library and such small offices as may be required for the officers and Board of Government. A separate entrance will be made for the Society, and there will also be direct connection with the club quarters.

The club proper will contain all the usual appointments of a modern, first-class club, including dining rooms, sleeping rooms, billiard room, etc.

It is expected that the building will be ready for occupancy before the first of the next year.

Under the arrangement as planned by the club, no funds of the club or Boston Society are invested in the property, and the only chances taken are for the lease of the property and payment of rent and running expenses. The property can be purchased at any time during the lease, if it seems wise to do so by the club, or at the end of the lease, if it would appear to be better to acquire other quarters, this can be done.

It will be seen from a study of the Treasurer's report, that the Society is in a good financial condition. There was a shortage at the end of last year. The increase in dues has increased the current income by nearly $1 900. Great economy has been exercised by the various officials of the Society, and the deficit of last year has been wiped out, and the Society will begin the new year with about $700 available of the current funds. This improved condition could not have been brought about without an increase in the dues.

The permanent fund is well invested and has turned the $30 000 mark.

For the Board of Government,

CHAS. T. MAIN, *President.*

ANNUAL REPORT OF THE SECRETARY, 1911–12.

S. E. TINKHAM, Secretary, *in account with the* BOSTON SOCIETY OF CIVIL ENGINEERS. *Dr.*

For cash received during the year ending March 20, 1912.

From entrance fees:			
31 Members	at $10 =	$310.00	
4 Associates	at 10 =	40.00	
12 Juniors	at 5 =	60.00	
Total from entrance fees			$410.00
Total from annual dues			6 464.50
From sale of JOURNALS			8.25
From advertisements			988.50
From rent			1 125.00
Total			$8 996.25

Boston, March 20, 1912.

We have examined the above report and found it correct.

L. Lee Street,
Chas. R. Gow,
Directors B. S. C. Engineers.

Annual Report of the Treasurer, 1911–12.

To the Boston Society of Civil Engineers:

Your Treasurer presents his report for the year ending March 20, 1912.

The financial information is submitted in three tabular statements. Table 1 contains the profit and loss statement, together with the corresponding figures for the three preceding years, for comparison. Table 2 exhibits the balance sheets at the beginning and end of the year. Table 3 shows how the Permanent Fund is invested.

In examining Table 3, it must be remembered that the book value of the several bonds represents the market value of two years ago, except in the case of bonds bought since that time, which are entered at cost. The present market values, however, would differ from the figures given by less than one hundred dollars, on the aggregate. The par value of the bonds is $23 600, and they are carried on our books at $22 975.50. They could probably be sold to-day for about $22 900.

The value of the Permanent Fund is now about $30 000. The interest return has been at the rate of 4.4 per cent. on the average value of the fund for the past year.

With the increase in annual dues, the current income of the Society has been increased by nearly $1 900. By the exercise of great economy, the excess of income over expense has been made to exceed $1 200, indicating that without the increased dues there would have been a shortage of about $700 for the year in current funds. As it is, the shortage of last year has been wiped out, and the Society will start the new year with nearly $700 of current funds available.

Respectfully submitted,

Charles W. Sherman, *Treasurer*

TABLE 1. — PROFIT AND LOSS STATEMENTS.

Income:

	1908–09.	1909–10.	1910–11.	1911–12.
Members' Dues	$4 113.00	$4 332.00	$4 567.00	**$6 448.50**
Advertisements	1 090.00	850.00	1 004.50	**984.50**
Library Fines	4.24	3.50	4.75	**5.56**
JOURNALS sold		6.50	4.50	**8.25**
Interest			10.47	**22.81**
Total Current Income	$5 207.24	$5 192.00	$5 591.22	**$7 469.62**
Entrance Fees	$600.00	$670.00	$945.00	**$410.00**
Contributions	100.00	100.00	200.00	**100.00**
Interest on Permanent Fund,	636.72	659.07	1 231.78	**1 301.72**
Total Income Permanent Fund	$1 336.72	$1 429.07	$2 376.78	**$1 811.72**
Surplus Account			1.50	
Balance, Deficit		334.18	940.26	
	$6 543.96	$6 955.25	$8 909.76	**$9 281.34**

Expense:

Association Eng. Societies	$1 329.50	$1 661.62	$1 912.62	**$2 010.00**
Rent (net)	950.00	950.00	856.74	**920.00**
Light	36.30	48.54	53.76	**49.68**
Printing, Postage, Stationery,	1 544.16	1 397.48	1 770.96	**1 356.99**
Salaries	550.00	750.00	1 007.00	**992.00**
Reporting	100.00	152.50	282.00	**68.00**
Stereopticon	165.00	135.00	180.00	**130.00**
Books	53.35	83.00	72.10	**40.53**
Binding	145.20	73.20	81.20	**169.30**
Periodicals	28.50	36.50	31.00	**47.00**
Incidentals and Repairs	71.19	41.83	79.45	**84.94**
Insurance	8.88	8.88	26.38	**26.38**
Telephone			59.82	**65.24**
Sanitary Section	60.00	60.00	45.00	**14.24**
Annual Meeting, Jt. Dinner		118.88	43.45	**220.82**
Depreciation on Furniture	33.50	8.75	31.50	**34.25**
Total Current Expense,	$5 075.58	$5 526.18	$6 532.98	**$6 229.37**
Permanent Fund	$1 336.72	$1 429.07	$2 376.78	**$1 811.72**
Balance	131.66			**1 240.25**
	$6 543.96	$6 955.25	$8 909.76	**$9 281.34**

NOTE FOR 1911–1912.

Received from the Secretary during the year, $6 464.50 for dues. Of this, $68 was paid in advance for 1912–13, and has been credited to accounts

payable, leaving $6 396.50 collected during the year for current dues; $52 was paid in advance last year, making the total income for current dues, $6 448.50, as tabulated.

For advertising, $988.50 was received from the Secretary, and $4 was paid to the Association of Engineering Societies.

For rent, the Secretary has collected $1 125, of which $270.83 represents accounts receivable at the beginning of the year, leaving $854.13 of current receipts. Adding $145.83 accounts receivable at end of year, makes $1 000 received or due from sub-tenants. Rent has been paid, $1 800 for the Society Rooms and $120 for Chipman Hall, a total of $1 920, making the net cost of rent $920 as tabulated.

TABLE 2. — COMPARATIVE BALANCE SHEETS.

	March 15, 1911.	March 20, 1912.
Assets:		
Cash	$260.63	$1 033.27
Bonds	19 430.50	22 975.50
Coöperative Banks	7 447.38	6 667.83
Savings Banks	370.33	132.21
Accounts Receivable	270.83	145.83
Library	7 500.00	7 500.00
Furniture	598.50	600.00
Current Funds (Deficit)	552.75	.....
	$36 430.92	$39 054.64
Liabilities:		
Permanent Fund	$28 219.42	$30 031.14
Current Funds	.....	686.00
Surplus	8 098.50	8 100.00
Accounts Payable	113.00	237.50
	$36 430.92	$39 054.64

TABLE 3. — INVESTMENT OF PERMANENT FUND, MARCH 20, 1912.

Bonds:

4	$1 000 Boston El. Ry. 4½ per cent. bonds, due 1937, principal registered, at 105½, =	$4 220.00
3	$1 000 Am. Tel. & Tel. Co., 4 per cent. col. tr. bonds, due 1929, principal registered, at 91¼ =	2 737.50
1	$600 Republican Valley R.R. 6 per cent. bond, due 1919, at 103 =	618.00
3	$1 000 C., B. & Q. R.R. joint 4 per cent. registered bonds, due 1921, at 96¼ =	2 887.50
2	$1 000 Union El. Lt. & Pr. Co. 5 per cent. bonds, due 1932, principal registered, at 102½ =	2 050.00
	Amount carried forward	$12 513.00

	Amount brought forward	$12 513.00
2	$1 000 Blackstone Valley Gas & Elec. Co. 5 per cent. bonds, due 1939, principal registered, at 99¾ =	1 995.00
2	$1 000 Dayton Gas & Elec. Co. 5 per cent. bonds, due 1930, principal registered, at 100 =	2 000.00
1	$1 000 Milford & Uxbridge St. Ry. Co. 5 per cent. bond, due 1918, principal registered, at 96¼ =	962.50
3	$1 000 Railway & Light Securities Co. 5 per cent. bonds, due 1939, principal registered, at 100 =	3 000.00
3	$1 000 Superior Water Lt. & Pr. Co. 4 per cent. bonds, due 1931, at 83½ =	2 505.00
		$22 975.50

Savings Banks:

	Boston Five Cents Savings Bank (including interest to October, 1911)	132.21

Co-operative Banks:

	25 shares Merchants Co-operative Bank (including interest to March)	$1 807.06	
	25 shares Workingmen's Co-operative Bank (including interest to March)	1 943.97	
	25 shares Volunteer Co-operative Bank (including interest to January)	2 916.80	
			6 667.83
	Cash in Old Colony Trust Company		255.60
	Total Permanent Fund		$30 031.14

Report of the Auditing Committee.

Boston, Mass., March 18, 1912.

We hereby certify that we have this day examined the books and records of the Treasurer of the Boston Society of Civil Engineers for the year 1911–12: that all receipts are properly accounted for and that there are proper vouchers for all expenditures.

We have also examined the securities and investments of the Society's funds, have verified and compared same with the books and found them all accounted for and properly carried.

We have compared the financial statement of the Treasurer with the books and find it to be correct.

L. Lee Street,
Chas. R. Gow,
Directors.

Report of the Library Committee.

The forty-first annual report of the library and for the year 1911–12 is herewith submitted.

The number of books added to the library the past year has been 372, of which 123 were bound in cloth and 252 in paper. As usual most of the bound volumes consist of magazines, society publications and reports.

The library now contains 6 860 volumes bound in cloth. The total number in paper is not given, as many of these will be bound in cloth later, thereby diminishing the number in paper.

During the year 160 books have been loaned to members, and fines to the amount of $5.56 have been collected. So far as possible all fines are collected, but occasionally a refusal to pay is met.

Seventeen volumes on engineering subjects have been purchased at an expense of $40.53.

As recommended last year, the Clemens Herschel Library has been put into presentable shape by the purchase of more sections.

It was recommended last year that an outside room be hired for the storage of books not in demand. This has not been done, and, in view of the near promise of larger quarters, it may be postponed a year or two.

The committee realizes that the library is simply waiting for the time when a permanent and trained librarian can be afforded or as soon as the Society obtains a change of quarters. Until that time those using the library will be compelled to put up with the inconveniences due to cramped quarters and lack of trained officials.

The committee recommends that:

The sum of sixty dollars be appropriated for the purchase of current engineering books the coming year.

That thirty dollars be appropriated for the purchase of a second plan case as recommended last year.

Frederic I. Winslow,
Henry T. Stiff,
Edwin R. Olin,
James M. Siner,
G. V. White,
Committee on Library.

Report of the Committee on Excursions.

March 20, 1912.

To the Boston Society of Civil Engineers:

During the past year five excursions have been made by the Society as follows:

	Attendance.
May 17, concrete buildings in Lawrence and Haverhill	60
June 21, automobile trip to Clinton	35
September 20, testing laboratory at the Watertown Arsenal	16
December 20, the Fenway Baseball Park	60
February 21, concrete buildings in East Boston	60

Total attendance, 231; average attendance, 46.

The committee has continued to collect data concerning "New Engineering Work," either in progress or contemplated, for publication in the *Monthly Bulletin* of the Society, and has contributed 28 pages to the nine *Bulletins*.

There is a balance in the hands of the committee of $52.94.

Respectfully submitted,

CHARLES R. GOW, *Chairman.*
RICHARD K. HALE, *Secretary.*

REPORT OF THE EXECUTIVE COMMITTEE OF THE SANITARY SECTION.

BOSTON, MASS., March 6, 1912.

In looking back over the past season's work in the Sanitary Section, it is to be noted that there has been at all times a live interest in the meetings, and that the quality of the papers presented has been high. Your Executive Committee, in planning the meetings, has endeavored to cover a range from the general subject of popular interest to the special subject of interest to a smaller circle only; the idea being to make the Section of value not only to the specialist but also to the engineer in a broad field of work. At various times in the past, the hope has been expressed that the men in actual charge of sewerage systems and disposal plants would gradually be brought into the Section, and thereby be led to express their ideas and experiences. The amendments to the Constitution and By-Laws enacted during the past season limit the future membership of the Section to include only members of the Society. It is not anticipated, however, that this will act to any appreciable degree to the detriment of the Section because of the established fact that the laymen are not anxious to attend engineers' meetings.

During the past season, four meetings have been held with an attendance as follows:

	Attendance at	
	Dinner.	Meeting.
March meeting	24	33
December meeting	34	43
January meeting	21	36
February meeting	39	65
Average	30	44

Your committee deemed it unwise to hold a June excursion, because the excursion planned by the Society was to be of a similar nature, and because of the feeling among many of the members of the Section that their business would not allow them to participate in two such occasions.

Owing to a change in plans of the speaker scheduled for the October meeting, it was necessary to cancel that meeting. The subject, however, was presented a few months later.

The following subjects have been discussed at the meetings:

March 1, 1911. "The Hudson Sewage Disposal System and the Disastrous Effects of Wool Waste," Frank A. Barbour. "The Disposal of Manufacturing Waste," Robert Spurr Weston.

(Both of the above papers were illustrated by lantern slides, and were subsequently published in the August, 1911, JOURNAL.)

December 6, 1911. "A Talk on the Panama Canal," Louis K. Rourke. "Sanitation of Construction Camps along the Catskill Aqueduct," Andrew J. Provost, Jr. "Sanitation of the Contractor's Camps in the Wachusett Basin," William W. Locke.

(The above papers were illustrated by lantern slides.)

January 3, 1912. "The Disposal of Paper-Mill Waste," Edward Hutchins. (Illustrated.)

February 7, 1912. "The Baltimore Sewage Disposal Works," Ezra B. Whitman. (Illustrated.)

The following paper, presented to the Section by title, was accepted and published in the JOURNAL for April, 1911: "The Use of the Salinometer in Studies of Sewage Disposal by Dilution," Kenneth Allen.

A paper entitled "The Emscher Sewerage District and the Imhoff Tank," Charles Saville, was published in the JOURNAL for July, 1911.

In considering the work of the Section, a study has been made of the records, and the following tabulation has been made to show the number of meetings held and the average attendance for each year since the Section was organized.

Season.	Number of Meetings Not Including Excursions.	Average Attendance for Season.
1911–1912	4	44
1910–1911	5	46
1909–1910	4	49
1908–1909	6	45
1907–1908	4	44
1906–1907	6	39
1905–1906	6	57
1904–1905	5	62
Previous	1*	120

* There were also two meetings for organization.

From this record it would appear that the Section has been well worth the effort expended, and the attendance has been well maintained.

The total membership of the Section is now 145, of which 17 are members of the Section only. Out of the total membership, 73 live outside of Boston and vicinity, and a large proportion of these live outside of New England.

There are three special committees of the Section as follows:

On Rainfall and Run-off. George A. Carpenter, chairman; H. K. Barrows, Lewis M. Hastings, Hector J. Hughes, William S. Johnson, Arthur T. Safford, Harrison P. Eddy, secretary.

On Collection and Tabulation of Sewerage Statistics: Harrison P. Eddy, chairman; Bertram Brewer, Charles Saville.

On Uniform Specifications for Sewer Pipe: Leonard Metcalf, chairman; E. S. Dorr, Charles R. Felton, Lewis D. Thorpe, F. A. Barbour, secretary.

The membership of the Section has been increased by 11 during the past season.

The financial relations between the Section and the Society have been changed, so that now all bills not covered by the per capita charge collected at the dinners are paid by the Treasurer of the Society after having been duly approved. No funds are carried by the Section. This is a marked improvement for all concerned, and will doubtless be the saving of both time and money.

The work of the committee would be greatly facilitated if the members of the Section would submit suggestions as to possible subjects for discussion or as to the names of gentlemen who might be induced to prepare papers.

Your committee has endeavored to arrange for a meeting at which the subject of "The Relation of State Boards of Health to Problems of Water and Sewage Purification" might be discussed by representatives from various states, but as yet it has not been possible to make any definite plans. It was also planned to have a discussion on "The Screening of Sewage" at this annual meeting, but it became necessary to make other arrangements. The committee feels that both of these subjects are of importance, and the hope is expressed that they may be discussed in the coming year.

Respectfully submitted for the Executive Committee,

GEO. A. CARPENTER,
H. K. BARROWS,
EDWARD WRIGHT, Jr.,
FRANK A. MARSTON,
Clerk.

REPORT OF THE COMMITTEE ON RAINFALL AND RUN-OFF.

BOSTON, MASS., March 6, 1912.

TO THE MEMBERS OF THE SANITARY SECTION OF THE BOSTON SOCIETY OF CIVIL ENGINEERS:

Gentlemen, — The Committee on Rainfall and Run-Off has held several meetings during the year, at which the data in its possession have been reviewed and discussed. It has become convinced that this data must be studied carefully in order to determine how much and in what form it is best to publish the same, but during the year that has passed the members of the committee have not had time to give to this data the necessary study and cannot yet present it to the Section in the best form for publication.

It is believed that it will be possible for the committee to put it into shape and publish it during the coming year, and it is, therefore, recommended that the committee be continued.

Respectfully submitted,

GEO. A. CARPENTER *Chairman.*

REPORT OF COMMITTEE ON MANUFACTURE OF SEWER PIPE.

BOSTON, MASS., March 6, 1912.

TO THE MEMBERS OF THE SANITARY SECTION OF THE BOSTON SOCIETY OF CIVIL ENGINEERS:

Gentlemen — The Committee on Uniform Specifications for the Manufacture of Sewer Pipe, which was continued with a view to the possibility of its coöperating with a similar committee appointed by the American Society for Testing Materials, reports that as the work of the latter association has not yet reached fruition, effective work by your committee has not been possible.

The local situation and attitude of the manufacturers of sewer pipe remain unchanged.

Your committee will be glad to be discharged, or, if it should seem wiser to the Section to continue it for the purpose of possible coöperation with the association referred to above (should the work of the latter attain fruition this year) it will hold itself in readiness for such work. The present committee is still of the opinion that it is undesirable for our association to attempt to prepare standard specifications which will be likely to be of service only in a very limited territory, and which might make coöperation with other associations at a later day more difficult.

Respectfully submitted,

LEONARD METCALF.
FRANK A. BARBOUR.
E. S. DORR.
CHAS. R. FELTON.
LEWIS D. THORPE.

COMMITTEE ON SEWERAGE STATISTICS.

MARCH 6, 1912.

SANITARY SECTION, BOSTON SOCIETY OF CIVIL ENGINEERS, BOSTON, MASS.

Gentlemen, — The Committee on the Collection and Tabulation of Sewerage Statistics makes report that it has been inadvisable to attempt to collect sewerage statistics during the past year. This work was done with such thoroughness as was possible, during the year 1909, and the results of that work were published in the JOURNAL OF THE ASSOCIATION OF ENGINEERING SOCIETIES, and are available for reference. The work required of city officials who furnish this information from year to year appears to add somewhat of a burden to their duties, and the committee has not felt that it was justified in asking to have this work done during the past year.

The form of statistics adopted by the Section has been adopted by several city officials and embodied in their annual reports. The committee feels that this forms a valuable part of the reports, and that its use should be encouraged. To this end your committee recommends that the printed blanks in its possession be turned over to the secretary of the Section, and that he be requested to make reasonable effort to have city officials interested in this line of work adopt this form and embody it in their annual reports.

The committee is of the opinion that it is unnecessary for the present to continue the collecting and compiling of sewerage statistics, as was done for one or two years, and suggests that the committee be now discontinued.

Respectfully submitted,

HARRISON P. EDDY, *Chairman*.

ATTENDANCE AT ANNUAL MEETING

The following list contains the names of members who registered as being in attendance at the Annual Meeting. The list is not complete, as some members failed to register, and it does not contain the names of all guests. Total attendance of members and guests at the various functions is estimated at over 300.

Adams, E. P.
Adams, H. S.
Aiken, R. C.
Allardice, E. R. B.
Allen, C. M.
Allen, Lawrence H.
Allen, Leslie H.
Andrews, H. B.
Bailey, F. S.
Barbour, F. A.
Barnes, T. H.
Barrows, H. K.
Bartlett, Arthur
Bartlett, C. H.
Bateman, L. H.
Bates, B. F.
Benoit, A. W.
Bigelow, W. W.
Blake, E. M.
Brackett, Dexter
Brazer, G. H.
Breed, C. B.
Brewer, Bertram
Brown, A. F.
Brown, C. L.
Bryant, H. F.
Bryer, C. S.
Buck, W. E.
Bullock, W. D.
Butcher, W. L.
Carpenter, G. A.
Carty, J. E.
Chadwick, H. M.
Chase, J. C.
Churchill, W. W.
Clukas, G. M.
Coffin, S. P.
Colman, A. N.
Connell, J. F.
Conner, S. L.
Cowan, H. E.
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EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

58. Has had fourteen years' experience as surveyor of lines and grades, twenty-two years' experience engineering and superintending underground construction, water construction, road and drain construction, preliminary survey for electric railway, inspecting sewer construction and preparing plans for electric power and water works. Recently has superintended the construction of sewers for Town of Swampscott. Desires position as inspector or engineer.

101. Age 34. Four years Harvard College, degree of S. B. Ten years' experience on construction of sewers, dams, concrete buildings, concrete conduits, surveys, etc. Desires position as civil engineer, inspector or superintendent of construction.

102. Age. 28. Three years at the Mass. Inst. of Technology. Two years with the Metropolitan Park Commission on general surveys, parkway, reinforced concrete bridge and seawall construction. Two and one-half years with Charles River Basin Commission in charge of party on reinforced sewer and seawall and locks, dam, etc. Two years with Commissioners of Sewerage of Louisville, chief of party in charge of all work connected with pipe and reinforced sewer construction. Topographic draftsman for U. S. Forest Service, plane-table work, stream gauging, etc. Surveys for U. S. Engineer's Office, Boston, one year. Desires position as draftsman, instrumentman or head of party.

103. At present a Junior at Colby Academy, New London, N. H. For the past two summers has been employed with a surveyor in Cambridge. Desires position as rodman.

104. Age 24. Graduate, Mass. Inst. of Technology. Has had experience as rodman on park construction, as instrumentman on pipe line and concrete drain construction and in charge

of survey and map of yard of an industrial plant; also as instrumentman and chief of party on street railway, interurban electric railway and steam railroad location and construction. Desires position as transitman or chief of party.

105. Age 26. Graduate Mechanic Arts High School and spent two years at the Mass. Inst. of Technology in the Biological Department. Desires any position, as a beginner, that will give outside work.

106. Age 45. Town Engineer Hopedale, Mass., for five years. With the Highway Department of the State of Rhode Island for four years; had entire charge of sewer construction and layouts and construction of electrical underground system at New Haven, Conn., and Lowell, Mass., respectively; installed water works plant at Parkerburg, W. Va. Desires position in municipal engineering.

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

City and Town Reports

Belmont, Mass., Annual Report of Water Commissioners for 1911.

Boston, Mass., Annual Report of Transit Commission for 1911.

Brookline, Mass., Annual Report of Water Board for 1911.

Danvers, Mass., Annual Report of Water Commissioners for 1911.

Newton, Mass., Annual Report of Water Commissioner for 1911.

Peabody, Mass., Annual Report of Commissioner of Public Works for 1911.

Plymouth, Mass., Annual Report of Water Commissioners for 1911.

Reading, Mass., Annual Report of Water Commissioners for 1911.

Taunton, Mass., Annual Report of Water Board for 1911.

Ware, Mass., Annual Report of Water Commissioners for 1911.

Wellesley, Mass., Annual Report of Water and Light Board for 1911.

Miscellaneous

Potash Salts, Summary for 1911. W. C. Phalen.
American Tel. & Tel. Co., Annual Report of Directors, 1911.
Elizabethtown Bridge. H. G. Tyrrell.
Essex Co., Mass., Annual Report of Engineer for 1911.
Milwaukee, Wis., Report on Water Works Efficiency.

By a recent vote of the Board of Government, all members who have been notified of a fine for books borrowed and remaining unpaid, are liable to have their names posted in the main library room.

FREDERIC J. WINSLOW, *Librarian.*

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RESIGNATIONS

(In effect March 20, 1912)

Andrew, John G.
Breitzke, Charles F.
Cook, Byron I.
Daniels, Frank F.
Dowst, Frank B.
Hartshorne, Richard G.
Hubbard, Winfred D.
Kettell, Charles W.
Kimball, Harry L.
King, Alvin W.
Marsh, Charles Reed
Morrison, William H., Jr.
Moyer, James Ambrose
Norcross, Theodore W.
Otis, Wilber C.
Peavey, Leroy D.
Shaughnessy, Charles S.
Siner, James M.
Stanford, Homer R.
Templeton, Charles F.
Wadsworth, George R.
Whitehead, G. Stanley
Whitman, William F.

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Water Works.—Work by pneumatic process is in progress on the extension of the water pipe tunnel under the Mystic River at Chelsea Bridge North. The tunnel is to be extended about 280 feet, and is 6 feet interior diameter with 12-inch brick walls. The invert of the tunnel is 46 feet below mean low water.

Work has been resumed on the foundations for the Hyde Park Pumping Station on Hyde Park Avenue near the boundary line between Wards 23 and 26. A contract has been made for the construction of the superstructure of the pumping station, which is to be of red brick with Quincy granite and terra cotta trimmings. It includes an engine-room 64 feet x 47 feet, a boiler-room 41 feet 2 inches x 41 feet, and a brick chimney 75 feet in height.

Metropolitan Park Commission.—*Charles River Reservation, Lower Basin.*—Contract for re-paving roadway on Charles River Dam awarded to James H. Fannon; work to be begun about April 1st.

Massachusetts Highway Commission.—Reconstruction of highway across causeway at Nahant. Surface to be of stone and Bermudez Asphalt mixed and laid on a crushed stone foundation. Total value of work, about $40,000. Work has already begun and is to be completed July 1st.

Construction of bituminous macadam roads in Tyngsboro and in North Andover. Also a bituminous gravel road in Grafton. The above latter three roads to be constructed by the penetration-layer method, the value of these being about $10,000 each.

Harbor and Land Commission.—Work has been advertised for bids to be opened April 12, as follows:—

In Manchester Harbor, dredging a channel 100 feet wide, 6 feet deep at mean low water, amounting to about 46,000 cubic yards.

At Cherry Island Bar, Revere, repairing breakwater for a length of about 800 feet, for which about 2,500 tons of stone will be required.

At Cuttyhunk, dredging is to be done to extend the basin 200 feet in length, 150 feet wide, 12 feet deep at mean low water, and a channel 750 feet in length, 60 feet wide, 6 feet deep at mean low water. Also, both jetties are to be strengthened and built up at their outer ends, requiring about 1,300 tons of stone.

Directors of the Port of Boston.—At the Fish Pier, South Boston Flats, considerable stone work is now visible, most of the wall under water having been completed.

City of Boston.—Public Works Department, Sewer and Water Division.—The conduit now being built for Stony Brook, at Forest Hills, at corner of Hyde Park Avenue and Walk Hill Street, and under the railroad, is now in an interesting condition. The conduit is 17 feet x 13 feet in a deep cut, and steel sheeting is being driven.

Bridge and Ferry Division.—*Meridian Street Bridge, East Boston to Chelsea.*—The upper portion of the pile bridge is being rebuilt and an entire new draw span and foundation built. The new draw will be about 273 feet long x 38 feet wide, of the equal-arm swing type and will span two channels of 100 feet each. The superstructure will be of steel throughout, except that the flooring is to be of plank and the sidewalk stringers hard pine; the foundation is to consist of steel girders imbedded in concrete, the monolith being inclosed in a water-tight plank box and supported on piles. The work is being pushed vigorously, three shifts working daily eight hours each.

Chelsea Bridge North.—Work has commenced on this bridge and the temporary bridge to provide for travel during the building of the new bridge is well under way. The plan for the new bridge contemplates building on the line of the present structure, a new large swing draw span which will provide two waterways through the bridge each 125 feet wide and 30 feet deep. The draw span is to be of steel and is to be built upon a masonry pier. Both will form part of the permanent steel and masonry bridge which is to be built in the future. The estimated cost of the proposed bridge is $425,000.

Boston Transit Commission.—Work on Section 1 of the Boylston Street Subway, between Kenmore Street and Charles-

gate East, is in progress. This includes changing the 48-inch water pipe between Kenmore Street and Charlesgate West and sinking shafts for permanent and temporary pump wells.

New York, New Haven & Hartford Railroad.—Construction of Cohasset Narrows Bridge Buzzard's Bay, to provide for double track: Contractors driving piles for temporary bridge.

Boston & Maine Railroad.—Elimination of Grade Crossings at Weston.—Concrete arch at Cherry Brook station under construction and filling for approaches being placed.

The Boston Terminal Company.—Extension of South Station Office Building: Construction nearing completion.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Argentine Battleship Rivadavia.
U. S. Torpedo Boat Destroyed Shenley and Duncan.
Submarine Boats Haddock, Cachalot, K-5, K-6.
U. S. Battleship Nevada.
Sulphur Str. Frieda for Union Sulphur Co.
Molasses Str. Nelson for Union Sulphur Co.
Steamer Richmond for Standard Oil Co.

New Haven, Conn.—The Aberthaw Construction Co. have just started work for the Winchester Repeating Arms Co. on their shot tower. This structure is for the manufacture of bird shot, is heavy reinforced concrete with steel cores to the columns, with a large tower which rises 150 feet. The floor loads are of necessity very heavy, and the whole structure is interesting.

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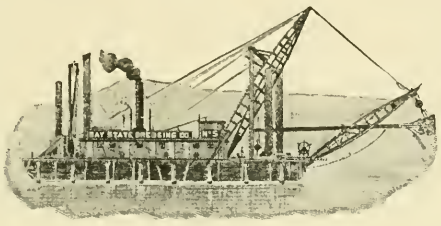

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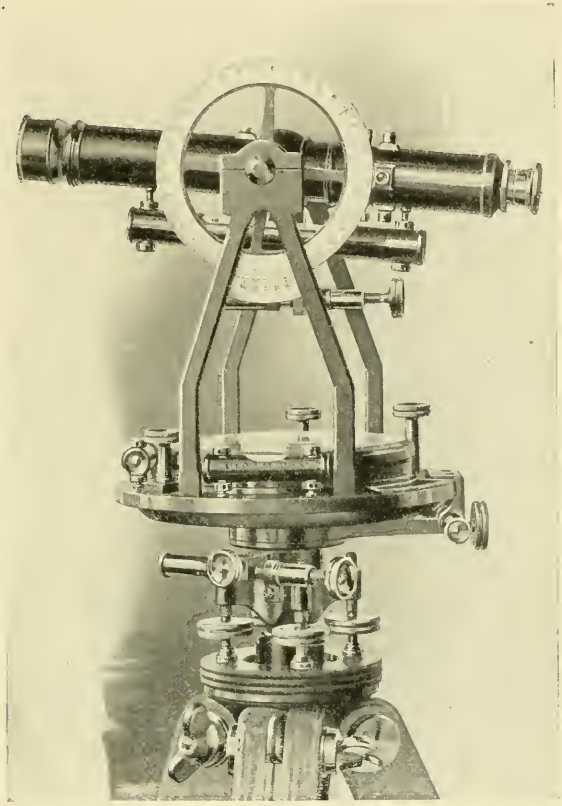

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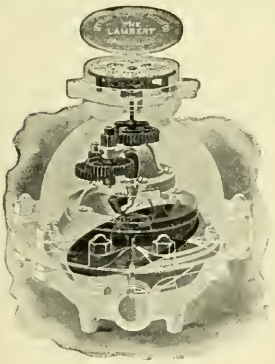

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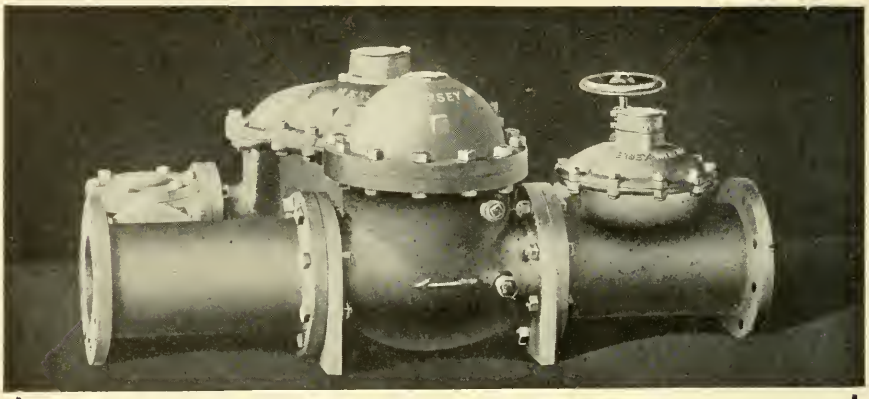

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ORGANIZED JULY 3, 1848.

MONTHLY BULLETIN.

NEW SERIES. MAY, 1912 No. 62

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN

May 15, 1912. Regular meeting in Chipman Hall at 7.30 p.m. Paper by Mr. Arthur W. Dean on Massachusetts State Roads.

May 27, 28 and 29, 1912. Fourth National Conference on City Planning.

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, May 15, 1912, at 7.30 P.M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting: To canvas the letter ballot on the recommendation of the Board of Government in relation to leasing quarters in the proposed Engineers Club Building.

Mr. Arthur W. Dean, Chief Engineer, Massachusetts Highway Commission, will read a paper entitled "The Construction and Maintenance of State Roads in Massachusetts."

S. E. TINKHAM, *Secretary.*

FOURTH NATIONAL CONFERENCE ON CITY PLANNING

The Fourth National Conference on City Planning will meet in Boston on Monday, Tuesday and Wednesday, May 27th, 28th and 29th, 1912. The sessions will be held in the Lecture Hall of the Boston Public Library, beginning Monday evening and closing Wednesday afternoon. A most cordial invitation

has been extended to members of the Society to attend these meetings.

The preliminary program as announced is as follows: —

1. *The Meaning and Progress of City Planning.*—Papers by

Frederick L. Olmstead, Fellow American Society Landscape Architects, of Brookline.

Arnold W. Brunner, Fellow American Institute Architects, of New York.

George F. Swain, Professor of Civil Engineering, Harvard University.

The papers and discussion will consider the development of the city planning idea, the growth of city planning organizations, the methods of campaigning for a city plan, and the attitude of the engineer toward city planning.

2. *City Planning Studies of Specific Areas.*—The problem of the Blighted District, J. R. Coolidge, Jr., Fellow American Institute Architects, of Brookline.

The Public Street Systems of the Cities and Towns about Boston in relation to Private Street Schemes, Arthur A. Shurtleff, Fellow American Society Landscape Architects, of Boston.

The papers and discussion will consider the social and economic value of planning ahead for different types of areas.

3. *How the City Planning Bills are to be Paid.*—Papers by

Nelson P. Lewis, Chief Engineer, Board of Estimate and Apportionment, New York City.

James A. Gallivan, Street Commissioner, Boston.

The papers and discussion will consider a more equitable distribution of the cost of public improvements.

4. *The "Zoning" Principle of Germany applied to the United States.*—Paper by

B. A. Haldeman, Assistant Engineer in Charge of City Planning, Bureau of Surveys, Philadelphia.

City Planning is a subject on which both the engineer and the architect must get together if anything effective is to be accomplished. It is a common fallacy that only the architects

are interested in city planning. The program of the Conference, as given above, is strong evidence to the contrary. The Chief Engineer of the Board of Estimate and Apportionment of New York City, the Assistant Engineer in Charge of City Planning of Philadelphia, and Prof. George F. Swain of the Civil Engineering Department of Harvard University and a Past-President of this Society, all have prominent places on the program.

The Board of Government believe that there is much of value in these annual gatherings of men who have studied at close range the problems incident to the growth of our cities, value that arises as much from the association and interchange of ideas as in the more formal sessions of the Conference.

APPLICATIONS FOR MEMBERSHIP

[May 8, 1912]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Smith, Richard Curtis, West Medford, Mass. (Age 30, b. Ledbury, England.) Graduated from Tufts College, 1906; degree B. S. in Civil Engineering. From August, 1908, to present time instructor in Structural Engineering, Tufts College; 1908-'09 instructor in Structural Drafting at Y. M. C. A. evening school, of Boston, and since 1909

instructor at Franklin Union Industrial School, of Boston, in Elementary Mechanics, Materials of Construction and Bridge Design. Refers to S. L. Conner, H. C. Hartwell, E. H. Rockwell, F. B. Sanborn and J. I. Tucker.

Linenthal, Mark, Boston, Mass. (Age 26, b. Boston, Mass.) Graduate of Harvard College with A. B. in June, 1907, and studied at the Graduate School of Applied Science the following year. From September, 1908, to September, 1911, was Assistant Engineer in the Bureau of Public Works in the Philippine Islands; since December, 1911, has been with Monks and Johnson of Boston, as engineer, engaged in designing various structures. Refers to W. M. Bailey, Granville Johnson, L. J. Johnson and C. J. Hogue.

MINUTES OF MEETING

April Meeting of the Society

Boston, Mass., April 17, 1912.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.45 o'clock, President James W. Rollins in the chair, eighty-four members and visitors present.

The record of the annual meeting held March 20, 1912, was read and approved.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:—Members, Herbert Neal Cheney, Gordon Hildreth Fernald and Benjamin Greely Fogg and as an Associate George Taylor. He also reported that the Board had elected Frederic I. Winslow, Librarian and had appointed, under authority of a vote of the Society passed at the annual meeting, the following committees:—

On the Library:—F. I. Winslow, G. V. White, H. T. Stiff, H. D. Woods and W. E. Foss.

On Excursions:—C. R. Gow, L. E. Moore, J. B. Flaws, W. O. Wellington and E. M. Blake.

On Code of Ethics:—C. T. Main, F. P. Stearns, G. B. Francis, C. R. Gow and C. B. Breed.

On Publications and to represent the Society on the Board of Managers, Association of Engineering Societies:—S. E. Tinkham, Dexter Brackett, C. W. Sherman, G. A. Kimball, H. P. Eddy, A. T. Safford, J. R. Worcester and H. F. Bryant.

On motion of Mr. E. W. Howe, the thanks of the Society were voted to the Stone & Webster Engineering Corporation, for courtesies extended to members of the Society on the occasion of the visit this afternoon to the work now under construction by that corporation for the Edison Electric Illuminating Co., on Massachusetts Avenue, Dorchester.

The Secretary then read the following report:

Boston, April 15, 1912.

To the Members of the Boston Society of Civil Engineers:

The Engineers Club has voted to exercise the option of leasing the property at No. 2 Commonwealth Avenue and are pushing to completion the plans for remodelling the same, so that it will be suitable for the club and for a home for the Boston Society of Civil Engineers.

The club is now an assured success, as the number of resident members is over 400 and the non-resident about 100, and the remaining number to make up the full membership can easily be obtained. The membership is comprised of men whose standing in the community assures the success of the club on a high standard and will cause the club to be of great influence in affairs.

This club will meet a long felt need for better social relations between engineers and others engaged in scientific pursuits and in business which is related to engineering. It will be a good beginning toward the combination of all the different branches of engineering and such a combination should tend to strengthen the standing of the profession in this community.

The club proper will contain all the usual appointments for a modern, first-class club, including dining rooms for both ladies and gentlemen, reading room, sleeping rooms, billiard room, bar, etc.

It is expected that the building will be ready for occupancy about the last of this year.

The Boston Society of Civil Engineers have for several years been accumulating a permanent fund with the hope of some time getting established in a home of its own. At the rate of accumulation it would be many years before the Society could

own and maintain a house suitable for its needs and worthy of the Society.

The present quarters of the Boston Society of Civil Engineers have become inadequate and new and more suitable quarters must soon be obtained. The Society is now a tenant-at-will and can move on giving six months notice.

The Society has before considered the purchase of property for a home and out of the deliberations on this subject grew the idea of an Engineers Club, with a home for the various engineering societies. This movement has been given the moral support by vote of the Society and by action of the Board of Government at various times and all recent plans for the Engineers Club have been based on the assumption that the Society would take quarters in the club house.

From the record of the meeting of June 15, 1910, is found the following, which relates to the original plan of having an Engineers Club on a very large scale.

"The President stated that in answer to a communication from the Joint Committee on Club-House and Society Headquarters, the Board of Government recommended the passage of the following votes:

1. VOTED: That the Society approves the general scheme for the proposed Society Headquarters and Engineers' Club, as outlined by the Joint Committee in its circular dated June 6, 1910.

2. VOTED: That the Society desires quarters in such a building as is proposed, and is prepared to pay a total annual rental not exceeding $2,500, therefor, in addition to salaries of independent or joint officials.

3. VOTED: That the Society advocates the joint maintenance and use of its library with those of other societies, but desires, as far as practicable, to preserve an independent ownership of books and periodicals.

Also that the Society desires the joint use of social rooms for all its members, but is unable to offer any additional rental above the amount specified in the second vote.

4. VOTED: That it is the opinion of the Society that its members individually or collectively will actively interest them-

selves in securing tenants for any headquarters building of approved design and location.

After amending vote 2 by striking out the amount of rental named and leaving the amount to be inserted to be determined by the Board of Government, the several votes were passed, on motion duly made and seconded for each vote."

The provisions for the Society, which have been made in the plans under preparation, are an assembly hall on the ground floor, capable of seating comfortably about 225, with a maximum capacity of 250. There is also on this floor, for use in connection with the assembly rooms, a coat room and toilet room. On the next floor above is the stack room for books and just above this a library or reading room, with a small room for a clerk or stenographer. There will be shelf room enough in the stack room and library to hold all of the books now in the library of the Boston Society and space in the assembly hall for shelves for a large number of books which may be added in the future. Books used very seldom could be placed here. An entrance on Arlington Street will be made for the Society and there will be a direct connection with the club quarters. The club will furnish heat and janitor service for the Society's quarters.

The club proposes to grant to the Society the use of the assembly hall, reserving it for such meetings of the Club and other engineering societies as do not conflict with the regular use by the Boston Society of Civil Engineers. It will thus be seen that the Society will have almost the entire use of this room. The Society will have exclusive use of the library, stack room and small office. It is the intention of the Board of Government of the Engineers Club to have the assembly hall used generously for meetings of all engineering societies, with a view of making the club a center for engineering activities.

The members of the Society, who are not members of the club, will have the privileges of the dining rooms extended to them on the evenings of the regular meetings of the Society and on the day of the annual meeting.

In order to make suitable provisions for the Boston Society,

as described above, it is necessary for the club to expend a large sum in excess of what otherwise they would be obliged to for a club alone, and for this expenditure it must pay the fixed charges. Added to this is rental for the portion of the land under the quarters of the Society and that portion of the floor space in the present building occupied by the Society. It has been carefully estimated that the annual cost of these charges and maintenance of the space required by the Society will be something more than $2,500 for the Engineers Club, and that a fair rental to be paid by the Society is about $2,500. This rental is considerably in excess of that now paid by the Society, but in return for the excess, the Society will be housed in a building used exclusively for engineering purposes and will be at the center of engineering activities. It will be established in a more permanent and commodious home and one which will be more attractive than its present quarters. It will join itself to a movement for increasing the importance of the profession.

In all probability new quarters in any locality or an increase in floor space at the present location will mean an increase in rental and this should be considered rather than the present rental in making comparisons.

As said before, the Society has been accumulating a fund for a permanent home. It is therefore proper that the income of the permanent fund, or a portion of the same, should be used to maintain a permanent home, and the increase in rental can be met in this way.

By the financial arrangement, as planned by the club, no funds of the Society need be invested in the property and the Society is therefore relieved of any chance it might take on an investment for a building of its own, the only obligation being that of rent, which can easily be met. If this enterprise is as successful as it should be, in all probability more porperty can be purchased in the future and arrangements made for accommodating all the engineering societies in Boston.

This undertaking should not be considered on a financial basis only. There is a good deal of sentiment connected with it. It is the most important movement which the engineers in

this vicinity have made in recent years. The center of all engineering interests should be the Boston Society of Civil Engineers. It is the oldest society and the strongest society, outside of the national societies, and should gather about itself, not only civil engineers, but engineers of all the different branches, and it may not be far distant when the suggestion of one of our recent presidents will come true that we shall become the Boston Society of Engineers.

It is hoped that the Society will not allow this opportunity, to identify itself with this movement, to go by without embracing it.

The Board recommends the passage of the following vote: *Voted:* That the Board of Government be authorized to lease quarters from the Engineers Club, to include stack room, library, office and auditorium, and to pay therefor not exceeding $2,500 per year, under such terms of use and occupancy as may be acceptable to the Board.

For the Board of Government,
JAMES W. ROLLINS,
President.

Mr. Main moved that the recommendation of the Board be adopted and the motion was duly seconded. The architect who had prepared the plans for the Engineers Club explained, with the aid of lantern slides, the proposed arrangement of rooms in the Club House with particular reference to the quarters to be leased to the Society.

A very full and free discussion followed in relation to the proposed quarters and the desirability of making the change. An amendment was then offered to the motion to adopt the recommendation of the Board, that the matter be submitted to a letter ballot, which was duly seconded. On a vote being taken the amendment was adopted, thirty-eight voting in favor and eighteen against. It was then voted that the recommendation of the Board of Government in its report be submitted to the members of the Society for a letter ballot.

A discussion then took place as to the advisability of sending out with the letter ballot, a circular giving the arguments

in favor and against the recommendation of the Board, and after various motions had been suggested, it was finally voted: That a committee of six be appointed by the chair, three in favor and three against, to prepare arguments to be submitted in a circular to accompany the letter ballot.

The President appointed the following Past-Presidents of the Society as members of the Committee: Messrs. Frederic P. Stearns, C. Frank Allen, George A. Kimball, Joseph R. Worcester, Henry F. Bryant and Charles T. Main.

The President expressed his regrets that the hour was so late that it would be necessary to postpone to a later date the presentation of the interesting paper which Mr. Dean had prepared for this meeting.

Adjourned. S. E. Tinkham, *Secretary.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

107. Age 22. Graduate, Harvard College and also had experience in surveying in the Harvard summer camp. Desired employment as rodman, instrumentman or draftsman.

108. Age 23. Graduate, Tufts College in department of Structural engineering. Has had some experience in structural drafting and in surveys for railroad locations. Desires position as structural draftsman or with field party. Salary desired, $75. per month.

109. Age 22. High School graduate. Has had experience as chainman. Salary desired, $50. per month.

110. Age 23. Graduate, Thayer School of Civil Engineering, Dartmouth College. Has had some experience in municipal engineering. Desires position on construction or field work. Salary desired, $65. per month.

111. Age 21. High School education and three years at Mass. Institute of Technology. Desires position as rodman or instrumentman. Salary desired, $50. per month.

112. Age 26. Graduate, University of Maine, 1908. Has had experience in plain and reinforced concrete work. Desired position as assistant engineer or inspector. Salary desired, about $100. per month.

LIBRARY NOTES

Book Reviews

Treatise on Hydraulics. By Mansfield Merriman. Ninth edition. Pp. x-565. $4.00 net. John Wiley & Sons, New York. (Gift of the Publishers.)

To the engineer or student familiar with hydraulic problems, the general character of this standard work must be too well known to require extended comment. The author states, in the preface, that this (9th) edition has been rearranged to include, in a logical manner, various additions which have been made in the reprints of the edition of 1903.

Two features are at once noticed by the reader. One is the inclusion of formulæ and tables in metric measure, at the end of various chapters. Possibly the fact that the book is intended primarily, as the author states, for a text book, may be the excuse for the introduction of this matter, which takes up some 20 odd pages. For, while some missionary work along the line of directing the student's attention to the benefits of the metric system may be desirable, it is certain that, with the present status of the metric system in America, the practicing engineer will pay but scant attention to these tables and formulæ, which must represent a large amount of work.

The second feature is the numbering of formulæ, diagrams, etc., with the number of the article under which they occur, and with a different sub-letter or figure in each case, to distinguish one from another. Thus in article 69 the first formula to occur is 69, and the next 69, etc. To the writer it requires considerably more of a mental effort to carry two or three of these numbers in mind, than under the ordinary plan of con-

secutive numbers, and he cannot at the moment see any corresponding advantages. A rather convenient device is the placing of the number of the article at the right of the running head at the top of each page.

Some typographical errors were noticed at the one or two places which happened to be examined rather closely. On page 105 the formula written V=MRn should be $V=MR^n$, and on the next page Figure 22a is referred to where Figure 42a is intended.

While the work is essentially for the classroom and does not contain a large number of those tables and diagrams which are so necessary for the expeditious solution of hydraulic problems in the engineer's office, it is nevertheless one of the best books published, to which one may turn for the solution of any of the special problems which are liable to come up in the office at any time.

The writer has searched rather diligently and has not noticed any important omissions from the book. In fact, in a few cases the bounds seem to have been somewhat stretched. For instance, it is questionable if matters relating to rainfall, estimates for water supply and power, logically belong in a work on hydraulics. While the matter has been excellently treated it is of necessity so brief and the subject so broad that it might well be omitted, lest an idea of its relative importance be based on the space occupied by it.

There is a good but extremely short history of the science of hydraulics, which the reviewer would like to have seen extended, although this possibly was not advisable.

Under friction losses in pipes there is presented a valuable table summarizing the results of various experiments on friction losses in steel rivetted pipes.

Some advice is given concerning the study and plotting of observations and on the use of significant figures. This latter matter is extremely useful considering the ridiculous extent to which calculations primarily based on uncertain data, are sometimes carried; although the writer is convinced that this tendency is due not to ignorance of the fact that the calculations are being

carried beyond a reasonable point, but to ignorance as to the extent to which they should be carried. The computer is actuated by a desire to be safe.

The volume ends with a chapter on hydraulic electric analogies. While this sort of thing is very interesting it is more useful to the man on the other side of the fence; that is to the electrical engineer struggling to find some tangible analogies to which he can tie his abstract representations of electric properties.

W. L. Butcher.

Sewage Sludge. By Fr. Spillner. Translated by Kenneth and Rose S. Allen.

Operation of Mechanical Sewage Plants. By Fr. Spillner and Mr. Blunk. Translated by E. Kuichling.

Sludge Treatment in the U. S. By Kenneth Allen.

Pp. xi.-272, 42 illus. McGraw, Hill Book Co. $2.50. (Gift of the Publishers.)

Ordinary sewage contains only about two one-hundredths of one per cent of suspended solids, but the separation of these two parts of solids from the 10,000 parts of liquid by which they are carried and the subsequent disposal of the sludge are the great problems in sewage purification. Much of the best work of investigators in recent years, both in this country and abroad, has been directed to the solution of the sludge problem, and developments have been so rapid and the views of the experts change so frequently that it is impossible, except by careful reading of a large number of periodicals, to keep informed on the subject.

This book of 258 pages is devoted solely to this one phase of the sewage purification problem, giving valuable information in regard to the older processes of sludge disposal, but devoting much of the space to the latest developments, and especially to the Imhoff tank, which is now receiving so much attention. The book is divided into four parts, the first three being translations of papers by German engineers, and the fourth a paper on sludge treatment in the United States by Kenneth Allen, Engineer of the Metropolitan Sewerage Commission of New York.

Part 1 by Alexander Elsner is an excellent general discussion of the treatment and utilization of sludge, containing chapters upon the composition and amount of sludge, its removal from clarification tanks, the reduction of the water contained in the sludge and the utilization of sewage sludge. Descriptions are given of many of the most successful German and English plants, the descriptions containing many essential construction details, as well as the results accomplished and the costs.

Part 2 is a translation of a paper on the drying of sludge by Fr. Spillner. The relative difficulty of drying sludge, separated by different methods, is discussed. This subject is of particular interest at the present time in connection with the use of the Imhoff tanks, as the sludge from these tanks is said to dry much more rapidly than that obtained from the ordinary sedimentation tanks, reducing very materially the cost of handling the sludge.

Part 3 is a translation by Emil Kuichling of a paper by Fr. Spillner and Mr. Blunk, the chemist and operating engineer, respectively, of the Emscher Association, where the Imhoff tank has been developed upon the results of the operation of some mechanical sewage clarification plants of that association.

Part 4 is an excellent resumé of the treatment of sludge in the United States by Kenneth Allen. The paper gives a rather too brief account of the methods employed at various places in the United States for the treatment of sludge, with valuable figures as to the quantities of sludge and the cost of treatment, and gives also information in regard to the experiments which have been made at Philadelphia and Chicago with the Imhoff tanks.

The book is undoubtedly the most important contribution to the literature of the subject which has yet been made and will prove of especial value to those who have not followed closely in the periodical literature the developments of the sludge problem.

WILLIAM S. JOHNSON.

Recent Additions to the Library

U. S. Government Reports

Water Supply Papers. Nos. 256, 257, 258, 263, 265, 267, 268, 269, 273, 274, 275, 277.

Cost of Public Roads in U. S. Pennybacker and Eldredge, Bureau of Education, Vol. 2 of annual report for year ending June 30, 1910.

State Reports

Ohio State Board of Health, Annual Report for 1910.

Ohio State Board of Health, Supplement to 25th Annual Report.

City and Town Reports

Burlington, Vt., Annual Report of Water Dept. for 1911.

Madison, Wis., Annual Report of City Engineer for 1911.

Milwaukee, Wis., Report of Recreation Survey (2 reports).

Springfield, Mass., Annual Report of Water Commission for 1911.

Waltham, Mass., Annual Report of City Engineer for 1911.

Worcester, Mass., Annual Report of Supt. of Sewers for 1911.

Miscellaneous

Corrosion of Iron and Steel. J. Newton Friend.

Elements of Structures. Geo. A. Hool.

Treatise on Hydraulics. Mansfield Merriman. (Gift of Publishers.)

Concrete Costs. F. W. Taylor and S. E. Thompson. (Gift of Authors and Publishers.)

Fac-similes of early surveyors field-notes of surveyors in New Bedford. By Crane, Hammond and Smith. (Gift of Geo. H. Tripp.)

Anyone having a spare copy of Bulletin No. 38 for January, 1910, is requested to send it to the Librarian.

Frederic I. Winslow, *Librarian.*

LIST OF MEMBERS

Additions

Allen, Leslie Herbert.....8 Beacon St., Boston, Mass.
Cheney, Herbert Neal.....Hilton St., Roxbury, Mass.
Fernald, Gordon Hildreth.....50 Milk St., Fitchburg, Mass.

Changes of Address

Albright, E. F.....28 School Lane, Ardmore, Pa.
Blood, J. B.....232 High St., Newburyport, Mass.
Brock, N. S.....Brown Station, N. Y.
Clark, T. W.....Old Town, Maine.
Gould, G. S.....1206 Boylston St., Newton Upper Falls, Mass.
Haskell, E. A.....65 Walker St., Newtonville, Mass.
Kearns, W. F.....240 Albany St., Cambridge, Mass.
Kimball, F. C., Gen. Mgr. Commonwealth Water & Light Co., Summit, N. J.
Lawton, L. C.....City Engr., City Hall, Haverhill, Mass.
Macksey, H. V.....R. F. D., Allatoona, Georgia
Morrill, F. P.....427 Huron Ave., Cambridge, Mass.
Morrison, H. J.....906 Orchard St., Peekskill, N. Y.
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Temperley, Charles.....507 Hudson St., New York, N. Y.
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Vesper, R. A.....89 Waldeck St., Dorchester Centre, Mass.
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Woodman, A. W.....122 South Michigan Boulevard, Chicago, Ill.

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Water and Sewerage Board, Water Works.—The work of extending the water pipe tunnel under the Mystic River at Chelsea Bridge North by pneumatic process, and of constructing foundations for the Hyde Park Pumping Station, referred to in the previous Bulletin, is in progress.

Work has been begun under the contract for the superstructure of the Hyde Park Pumping Station.

Metropolitan Park Commission.—Charles River Reservation, Lower Basin.—The work of re-paving roadway on Dam is in progress.

Directors of the Port of Boston.—Fish Pier, South Boston.—About 90 per cent. of the masonry required has been laid in the sea walls and about 50 per cent. of the fill has been made. The sea walls below low water have been practically completed with the exception of a gap in the outer or northerly wall, which will be left open as long as filling for the Pier may be brought in and dumped from scows. The larger part of the coping on the sea wall along Northern Ave. has been laid.

Wash drill borings are being made to a depth of 40 feet or to a less depth if rock is encountered between the main ship channel and the U. S. Pierhead line off the Commonwealth's Flats at South Boston.

City of Boston.—Public Works Department, Bridge and Ferry Division.—*Meridian Street Bridge, East Boston to Chelsea.*—The upper portion of the pile bridge is being rebuilt and an entire new draw span and foundation built. The work is being pushed vigorously as the contract has a bonus and forfeiture clause. The draw foundation has been completed and the erection of the steel draw span is in progress, presenting at the present time some interesting features.

Chelsea Bridge North.—Work on the temporary bridge to provide for travel during the building of the new bridge is well under way.

Fire Boat Berth at Northern Avenue Bridge.—The timber wharf and pier to be used for a berth for a fire boat is nearly completed and the house for quarters for the crew of the boat is now being built.

Boston Transit Commission.—Section 1 of the Boylston-street Subway, from Kenmore street to Charlesgate East, is now under construction by the Hugh Nawn Contracting Co.

New York, New Haven & Hartford Railroad.—Construction of Cohasset Narrows Bridge, Buzzard's Bay, to provide for double track: Contractors driving piles for temporary bridge.

Lowell, Mass.—The American Hide & Leather Co's. new tannery is built entirely of reinforced concrete. It is an interesting example of the use of the material for the particular purposes of tanning. The concrete vats, of which there are a very large number, are particularly interesting. The sewage system is adapted particularly for the passage of coarse matter in the sewage and its separation before the sewage is passed to the main sewer. The Aberthaw Construction Co. has just turned this work over to the owner.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

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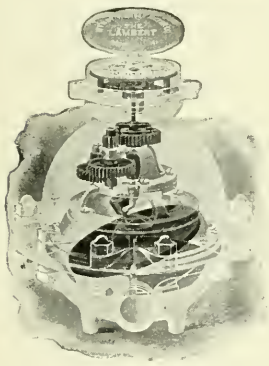

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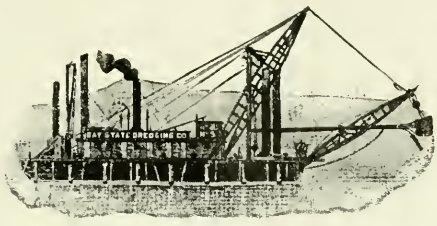

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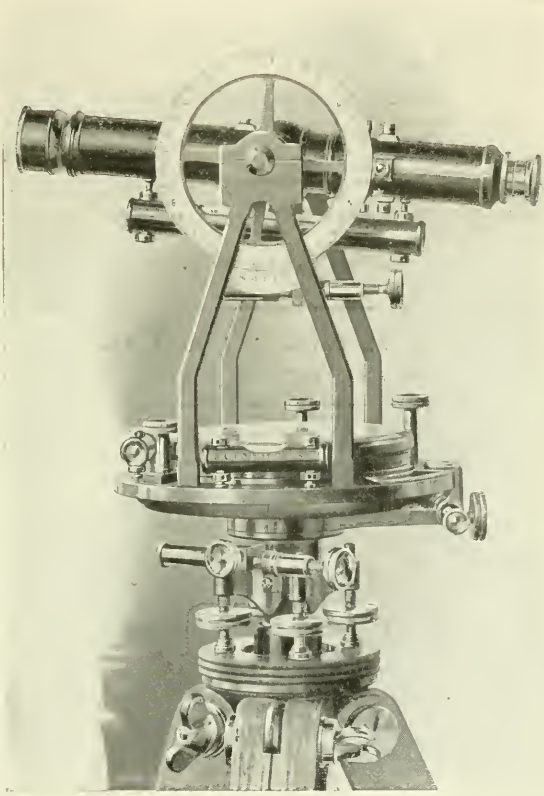

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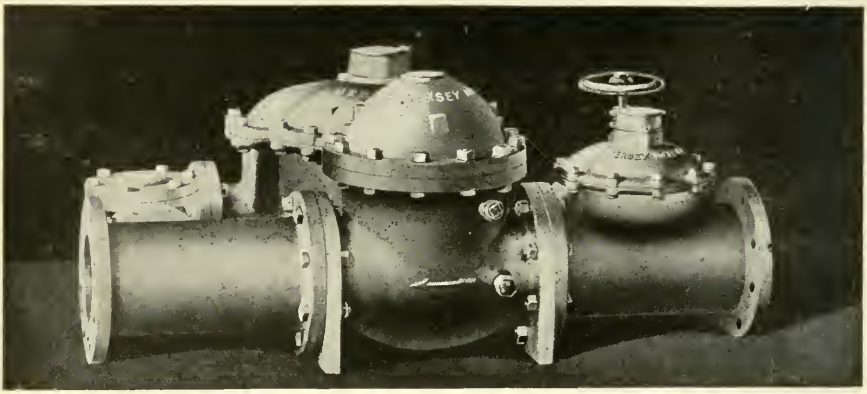

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MONTHLY BULLETIN.

NEW SERIES. JUNE, 1912 No. 63

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN

June 19, 1912. Regular meeting at the Boston City Club at 8 o'clock P. M. Col. George W. Goethals, Illustrated Talk on the Panama Canal.

June 26, 1912. Excursion to Cape Cod Canal by New England Water Works Association.

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on **Thursday** evening, June 20, 1912, at the Boston City Club at 8 o'clock.

Col. George W. Goethals, Chairman and Chief Engineer, Isthmian Canal Commission, will give a talk on the Panama Canal, illustrated with lantern slides.

The meeting will be preceded by an informal reception at 6.30 o'clock and a dinner at 7 o'clock at which Col. Goethals will be the guest of the Society.

It is hoped that members will avail themselves of this opportunity to meet our distinguished guest and that a large number may be present to extend him a most cordial welcome.

The price of the dinner will be $1.50 per plate.

You are urged to notify the Secretary at as early a date as possible, if you expect to be present at either the dinner or the meeting.

S. E. TINKHAM, *Secretary.*

NEW ENGLAND WATER WORKS ASSOCIATION EXCURSION TO CAPE COD CANAL WEDNESDAY, JUNE 26, 1912

The members of the Boston Society of Civil Engineers have been invited to join the New England Water Works Association in an excursion to the Cape Cod Canal on Wednesday, June 26, 1912.

A special train will leave the South Station at 9.30 o'clock, returning to Boston at 6.35 o'clock.

The total cost of the trip will be $3.00.

Circulars giving details of excursion may be obtained at the Society rooms, or will be mailed on application to the Secretary.

If you intend to join the party, it is essential that you notify the Secretary before June 24th.

APPLICATIONS FOR MEMBERSHIP

[June 13, 1912]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Brunel, Richard, Cambridge, Mass. (Age 25, b. Portland, Me.) Studied civil engineering at Harvard University, 1907 to 1911. From Oct., 1903, to Sept., 1904, was employed at general surveying, land, topographical, hydrographic, etc.; Sept., 1904, to Sept., 1906, in the employ of the U. S. Constructing Quartermaster, Portland, Me., as rodman and inspector; during the latter part of that time in charge of construction of a sewer, water and drainage system, and a pier at Fort Levett, Me. Nov., 1906, to Sept., 1907, inspector and 2nd Asst. Engineer on construction of Vaughan's Bridge, Portland, Me. During summer of 1909, transitman for U. S. Engineers on survey of St. Croix River, and summer of 1910, draftsman with U. S. Engineers, Portland, Me. After graduation, from July, 1911, to Dec., 1911, in U. S. Engineer's office, as draftsman and transitman. Dec., 1911, to March, 1912, draftsman with Sawyer & Moulton, Portland, Me. At present draftsman in the office of J. R. Worcester & Co., 79 Milk St., Boston. Refers to W. A. Clapp, H. J. Hughes, L. J. Johnson, E. E. Pettee, and W. H. Sawyer.

Crocker, Henry Lowell, Boston, Mass. (Age 23, b. Yorktown, North Dakota.) Graduate of Cotuit High School and attended Lowell Inst., Boston. At present taking the two-year course in concrete structures at Franklin Union, Boston. During 1908 to 1911, employed as transitman by Aspinwall & Lincoln, Boston. At present transitman for the Boston Transit Commission. Refers to C. H. Bartlett, E. S. Davis, J. B. Flaws, J. T. Frame and L. B. Manley.

Dyer, Herbert Winfield, Boston, Mass. (Age 41, b. South Boston, Mass.) Graduate English High School. From Aug., 1893, to present time, worked for the Brookline Gas Co. (now Boston Consolidated Gas Co.) During that time attended evening drawing schools at Y. M. C. A., City of Boston schools and Hawes School in South Boston; also Lowell lectures on surveying, and home study. At present head draftsman, Distribution Dept., Boston Consolidated Gas Co. Refers to H. N. Cheney, J. A. Gould, H. C. Hartwell, L. B. Manley, D. S. Reynolds, and F. P. Spalding.

Sears, Calvin Crosby, Somerville, Mass. (Age 29, b. Dennis, Mass.) Graduate Dennis High School. April to November, 1906, with Coffin & Thorpe, and from November, 1906, to date, with their successor, L. D. Thorpe, on general office work, such as drafting, computing, etc. During the summers of 1909, 1910, and 1911, inspector on extensions of the Norwood Sewerage System, also connected with the design and construction of water systems in Newburyport, Danvers, Amesbury, Ayer, Maynard, Littleton, South Hadley and Norwood. At present inspector on construction of new water system of Norwood, Mass. Refers to E. H. Kitfield, C. T. Main, J. F. Osborn, J. E. Palmer and L. D. Thorpe.

MINUTES OF MEETINGS

Boston, May 10, 1912. A special meeting of the Boston Society of Civil Engineers was held at the Boston City Club this evening at 8 o'clock.

The students taking the civil engineering course at Harvard University, at Tufts College and at the Mass. Institute of Technology, had received special invitations to be present at this meeting, and nearly 200 accepted. The total attendance of members and guests was about 275.

Mr. James W. Rollins, President of the Society, in a brief address extended a cordial welcome to the students, after which Mr. Leonard Metcalf, with the aid of lantern slides, gave a very interesting talk on "Some Recent Developments in Sewage Purification Methods."

At the close of the talk, light refreshments were served and a social hour was enjoyed, enlivened by singing and other entertainments on the part of the students.

S. E. Tinkham, *Secretary*.

Boston, Mass., May 15, 1912.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.45 o'clock, President James W. Rollins in the chair, sixty-five members and visitors present.

The reading of the record of the last meeting was dispensed with and the record as printed in the May *Bulletin*, was approved.

The Secretary reported for the Board of Government that it had elected Messrs. Walter Nathan Charles, S. John Connolly, Arthur J. W. Harty, Franklin L. Mason, Ira Welch McConnell, and Herbert A. Moody, Members of the Society.

The President announced that the Society would tender an informal reception to the foreign engineers visiting Boston the first week in June at the close of the 12th International Congress of Navigation. The reception would probably be held in the City Club on Thursday, June 6, 1912.

On motion of Prof. Allen it was voted that the Board of Government be authorized to fix the time and place for holding

the regular meeting in June other than as provided in the by-laws, if they deem it desirable.

On motion of Mr. Fay it was voted: That the Boston Society of Civil Engineers extend a most cordial invitation to the American Society of Civil Engineers to hold its annual convention for 1913 in the City of Boston.

Messrs. F. H. Fay and C. M. Spofford, the tellers appointed to count the ballots upon the adoption of the recommendation of the Board of Government authorizing the Board to lease quarters from the Engineers' Club, reported as follows:

Total number of ballots cast, 314; Yes, 110; No, 203, and one unsigned. In accordance with this report, the President declared that the recommendation was not adopted.

On motion of Mr. Main it was voted that the Board of Government be authorized to extend the lease for Society quarters in Tremont Temple and to acquire such additional quarters as in the judgment of the Board are necessary.

Mr. Arthur W. Dean was then introduced and read the paper of the evening entitled, "The Construction and Maintenance of State Roads in Massachusetts."

Mr. Hugh L. Cooper, Chief Engineer of the Hydraulic Construction Co., was then introduced and with the aid of lantern slides gave a most interesting account of the Keokuk Water Development.

After passing a vote of thanks to Mr. Cooper, the Society adjourned.

S. E. Tinkham, *Secretary.*

JUNE EXCURSION OF THE SANITARY SECTION

Worcester, Mass., June 6, 1912.—The Annual June Excursion of the Sanitary Section of the Boston Society of Civil Engineers was held on this day at Worcester, Mass.

Through the courtesy of His Honor the Mayor and Supt. of Sewers, Mathew Gault, the Section was invited to inspect the Worcester Sewage Disposal Works at Quinsigamond as guests of the City.

The party assembled at the Worcester Union Station shortly

after 1 o'clock P. M., having made the trip from Boston and other points by trolley and steam railroad.

A special electric car, provided by the City, was in waiting, and in it the party were conveyed to Greenwood Park, near the Sewage Disposal Works, where an excellent buffet lunch was provided. There were 53 members and friends of the Sanitary Section present. The City of Worcester was officially represented by Alderman Harrop, Chairman of the Sewer Committee.

After the lunch, the party gathered in a sheltered spot on the side hill of the Park, and a photograph was taken. Chairman George C. Whipple spoke briefly in appreciation of the courtesy shown the Section by the City in extending the invitation and in providing the special car, buffet lunch and other attentions which helped to make the trip so successful, and also of the efforts of Supt. Mathew Gault and his assistants to make the trip enjoyable. Mr. Gault gave a short history of the Sewage Disposal Works and a description of the processes employed. The party then walked over to the Works and were conducted about by Mr. Gault, Mr. Fales, Supervising Chemist, and Mr. Jones, Assistant Chemist. Although all of the features attracted much attention, the greatest interest was shown in the experimental work being carried on with an Imhoff tank and sprinkling filters. A quantity of sludge was drawn off from this tank, and opportunity was also given to examine sludge drawn the day before, and some drawn about two weeks previously. The sludge had a faint tarry odor, but was otherwise unobjectionable. There was certainly no trace of the characteristic sewage odor usually found in sludge from other processes. The mass appeared to be full of gas, and showed indications of drying quickly when run onto the sand bed.

The sludge tanks, presses, filter beds, laboratory and all the details were exhibited and explained in a most interesting manner.

It was after 5 o'clock when the party left the Sewage Disposal Works and proceeded by special car to the Southbridge Street junction of the Boston & Albany Railroad and the New York, New Haven & Hartford Railroad. The most spectacular

part of the grade crossing work which has been going on for some time is nearing completion at this point. Mr. Jameson, Resident Engineer for the work, conducted the party, and gave a great deal of interesting information in regard to the steel and concrete construction. A large variety of structures have been built to carry the railroads over the streets and crossings, and some of the steel work involved is of exceedingly heavy construction. This is especially true of the plate girders at Southbridge Street, designed to carry one railroad over the other.

From Southbridge Street the trip followed along the railroad back to the station. All of the structures were inspected, and many unusual features were examined. The thanks of the Section were extended to Mr. Jameson for his courtesy in explaining the work under his charge.

The majority of the party left Worcester on the 6.17 o'clock train, although some went by trolley and train at an earlier hour.

FRANK A. MARSTON, *Clerk.*

PHOTOGRAPHS OF EXCURSION PARTY

It is expected that proofs of the group picture taken Wednesday, June 6, at Worcester, on the occasion of the Sanitary Section Excursion, will be received within a few days and will be placed on exhibition at the Society rooms. Orders should be left with one of the attendants or notice sent to the Clerk. The price of the picture mounted will be $1.00. If the number ordered is sufficiently large the price will be reduced to 75 cents.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

113. Graduate Tufts College with B. S. Degree. Had some experience in structural drafting, railroad work and concrete construction with U. S. Government and as estimator on buildings. Desires position as estimator or outside inspection work on concrete. Salary desired, $100 if permanent; otherwise $125 per month.

114. Age 21. Student at Massachusetts Institute of Technology, having completed third year. Has had three years' experience in surveying, including transit-work, levelling, stadia, plane-table and railroad curves as given at Inst. of Tech. Has done some work in staking out house lots. Desires position as rodman or instrument man. Salary $50 per month.

115. Graduate Harvard College and also had work with New York State Engineers taking soundings for barge canal work, levelling, plotting cross sections and running transit. During summers of 1910 and 1911 was at Harvard Engineers' Camp as student and as an assistant in plane and railroad surveying. Desires position as rodman or instrumentman. Salary desired, $60 per month.

116. Age 25. One year at Massachusetts Institute of Technology, and two years at Wisconsin University. Three years' experience on railroad construction, during which time has been concrete inspector, pile inspector and instrument man. Desires employment as instrument man or concrete inspector. Salary $80 per month.

LIST OF MEMBERS

Additions

Charles, Walter N. .....90 Centre St., Dorchester, Mass.
Connolly, S. John .....15 Everett St., Beverly Farms, Mass.
Fogg, Benjamin G. .....56 Warren St., Everett, Mass.
Harty, Arthur J. .....112 Ashland St., Malden, Mass.
Mason, Franklin L. .....39 Meridian St., Malden, Mass.
McConnell, Ira W. .....147 Milk St., Boston, Mass.
Moody, Herbert A. .....178 Devonshire St., Boston, Mass.
Taylor, George W. .....201 Devonshire St., Boston, Mass.

Deaths

Leland, George I. .....May 16, 1912
Jones, J. Edwin .....June 3, 1912

LIBRARY NOTES

Book Reviews

Concrete Costs. Tables and Recommendations for Estimating the Time and Cost of Labor Operations in Concrete Construction, and for Introducing Economical Methods of Management. By Frederick W. Taylor and Sanford E. Thompson. Small 8 vo., xxii-709 pp. 82 figures. $5.00 net (21/1). New York: John Wiley & Sons, 1912. (Gift of Authors.)

The object of this book by the authors of the well-known work on "Concrete, Plain and Reinforced," is indicated by the title quoted above. The authors state that they hope the work will be used—

1.—By architects, engineers, and contractors in making accurate estimates of the cost of concrete works and structures.

2.—By contractors, superintendents, and foremen, to help them to so lay out and plan their work that their materials will be more economically handled and used than in the past, and that each workman will do more and better work than heretofore.

3.—To assist in the introduction of the principles of Scientific Management in the building trades.

It may, at first sight, seem singular that a book of 692 pages could be written on this subject, but an examination of it shows an unusually thorough and exhaustive treatment of all the matters embraced under its title, with numerous tables and diagrams to assist the estimator, and the reader will become speedily convinced that the objects of the authors have been entirely accomplished.

The making of estimates of cost is usually a more or less rough proceeding. This is clearly shown by the great differences between the estimates for the same work made by equally competent and experienced contractors, these estimates sometimes differing by 100 per cent. The authors of this book have endeavored to give such information as will enable the estimator, taking due account of local conditions and prices, to make a more scientific and accurate estimate than is usually produced,

and yet without an undue expenditure of time if the carefully prepared tables and diagrams are used.

Concrete construction is in this book reduced to its elements, and a distinctive feature of the work is the analysis of the time which should be required, and the consequent cost, in each of the elementary operations. Information is given in the tables as to how long it should take a workman to do the various tasks or elementary operations involved, these items having been obtained by watching men while engaged in their ordinary work and noting the times with a stop-watch. This method is well known to students of scientific management.

It must not be supposed from the above, that the estimates and costs given in the work are those which the authors consider compatible with the highest efficiency. On the contrary, they are based upon the actual conditions or practice. Information is given, however, in the course of the work, as to reasonable times for each element, in the hope, as the authors state, that the book may assist in the introduction of the principles of scientific management in the building trades. Indeed, Mr. Taylor states in the introduction, that while he realizes that for several years to come, the third function of the book will be subordinate to the other two, he is, nevertheless, so thoroughly convinced of the ultimate triumph of the principles of scientific management that he firmly believes that the promotion of this cause will, in the end be the most important function of the book.

The above facts will, upon examination, justify what may seem at first sight too minute subdivision of the material in the book. Many readers will think it too detailed, but as they peruse its pages they will alter their opinion, and if they are themselves believers in the principles of Scientific Management, they will be glad to see the matter presented in just the form in which it is here shown.

Besides giving material for detailed and accurate estimates, the book gives a large collection of information which will enable rough approximations to be quickly made. Thus, Chapters I, II and III give a very large collection of data, from the actual records, with curves and tables deduced therefrom, regarding

the actual cost of concrete structures of various kinds. Chapters IV and V deal with labor cost, task work and the principles of scientific management, which are discussed very clearly. Chapter VI treats of proportioning concrete, being a resumé of the discussion of the subject in the larger work of the authors. Chapter VII gives tables of quantities of materials for concrete and mortar, with a discussion of the theory of a concrete mixture and many illustrative examples. Chapter VIII gives the cost of concrete materials. Chapter IX treats of excavating and crushing stone; Chapter X of handling and transporting materials; Chapter XI of hand mixing; Chapter XII of machine mixing and handling; Chapter XIII of labor costs of machine mixing; Chapter XIV of forms for mass concrete; Chapter XV of arch centers; Chapter XVI of forms for reinforced concrete; Chapters XVII to XXII tables of various kinds, while the last chapter shows how to make an estimate for reinforced concrete construction and how to use the tables in doing so.

In looking over this work one is amazed at the amount of material which has been compressed in it. It must have taken years of painstaking research, study of periodicals and recording of results to get together such a large amount of data, and the practising engineer is fortunate to have this information placed within easy reach in one volume. The book is not one which will be read through continuously, but it is a mine of information for any engineer engaged in estimating and constructing concrete works.

GEO. F. SWAIN.

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Coast and Geodetic Survey; Isostatic Compensation.

Bureau of Education: Vol. I of Annual Report for 1910-11.

City and Town Reports

Concord, Mass., Annual Report of Board of Health for 1911-12.

Concord, Mass., Annual Report of Road Commissioners for 1911-12.

Louisville, Ky., Annual Report of Water Co. for 1911.

Marlborough, Mass., Annual Report of Water Commissioners for 1911.

Medford, Mass., Annual Report of City Engineer for 1911.

New Bedford, Mass., Annual Report of Engineering Dept. for 1911.

Northampton, Mass., Annual Report of City for 1911.

Plainfield, N. J., Annual Report of City for 1911.

Worcester, Mass., Annual Report of City Engineer for 1911.

Worcester, Mass., Annual Report of Supt. of Sewers for 1911.

Miscellaneous

Navigation Congress: 4 portfolios of miscellaneous reports covering Inland Navigation and Ocean Navigation, Communications and Questions.

Rules for Ventilating and Heating. W. J. Baldwin, Jr.

Engineers' Year Book. H. R. Kempe.

Kansas City Bridge. O. Chanute and G. S. Morison.

New York Subways and Tunnels. Gilbert, Wightman and Saunders.

Highway Engineering. Blanchard and Drowne.

Rock Drilling. Dana and Saunders.

Scientific Management. Fred'k A. Parkhurst.

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NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Water and Sewerage Board, Water Works.—The work of extending the water pipe tunnel under the Mystic River at Chelsea Bridge North by pneumatic process and of constructing the superstructure of the southern extra high-service pumping station on Hyde Park Avenue in Hyde Park is in progress.

Metropolitan Park Commission.—*Charles River Reservation, Lower Basin.*—The work of repaving roadway on Dam is in progress.

Directors of the Port of Boston.—Fish Pier, South Boston.—Work continues on the construction of the masonry sea walls, back ballasting the same, and on the filling.

It may be of interest to see the mechanically operated scraper of the Eastern Dredging Company used in filling the central portion of the pier.

A contract for furnishing and driving four pile dolphins to mark the limits of the Anchorage Basin off East Boston has been awarded to Lawler Brothers.

Harbor and Land Commission.—The following work is in progress: —

Cuttyhunk.—Dredging is in progress by hydraulic dredge, to enlarge the basin and dig a channel across bar in inner harbor. The jetties have been repaired.

Manchester.—Dredging is in progress at Manchester Harbor for a channel 100 feet in width 6 feet deep at mean low water.

Scituate.—Contract has been awarded for dredging in Scituate Harbor a channel 60 feet wide and 6 feet deep at mean low water.

Gloucester.—Proposals have been received for dredging Harbor Cove, Gloucester, to a depth of 15 feet at mean low water.

Boston Transit Commission.—Work on the Boylston-street Subway is now in progress from Kenmore street and Commonwealth avenue to Exeter street and on the Dorchester Tunnel is in progress under Winter street. The Hugh Nawn Contracting Company is the contractor on the Boylston-street Subway and the Coughlan & Sheils Company on the Dorchester Tunnel.

City of Boston.—Public Works Department, Bridge and Ferry Division.—*Meridian Street Bridge, East Boston to Chelsea.*—The upper portion of the pile bridge is being rebuilt and an entire new draw span and foundation built. The work is being pushed vigorously as the contract has a bonus and forfeiture clause. The draw and its foundation are now substantially completed and the pile bridge work is well under way.

Chelsea Bridge North.—Work on the temporary bridge to provide for travel during the building of the new bridge is in progress and the temporary draw span is being erected.

Sewer and Water Division.—Stony Brook Conduit now being carried under the tracks, embankment and retaining wall of the N. Y., N. H. & H. R. R., south of Forest Hills Station, is of reinforced conduit, 17 ft. by 13 ft., with 2 ft. by 4 ft. sanitary sewer; steel sheeting driven, tracks supported on bridge girders and side walls of conduit to be carried under the retaining wall in separate drifts.

Boston Elevated Railway Company.—Elevated and Subway Construction.—*Forest Hills Station.*—A new exit stairway has been installed from the northerly exit gallery to Forest Hills Square east of the Terminal building. This should prove a great convenience to those wishing to reach the Square direct from the elevated unloading platform. At the present time all passengers on leaving the elevated trains are required to seek the lowel level loading platform for southbound surface cars. The use of this new stairway will materially relieve congestion on this platform.

Rowes Wharf Station.—A new through plate girder span has replaced the 72-foot deck lattice girder span on the north-bound track at this station. This permits the erection of a transverse gallery over Atlantic Avenue, with additional entrance and exit

stairs to the easterly sidewalk. With the new arrangement to be made available by June seventeenth, the heavy "beach traffic" will be much more easily handled.

Green St. Station.—Carpenter and copper work are progressing rapidly at the new Green Street Station and it should be open to public traffic before August first.

Sullivan Sq. Station.—The new roof over the surface incline, on the Somerville and Medford side is complete and rapid progress is being made on the new south bound platform over Main Street. After the proposed changes are ready for traffic, all passengers arriving from Boston will leave the trains in the large shed as at present. The trains will then pass around the loop empty, loading for Boston at the new Main Street platform mentioned above.

The surface cars on the Somerville side are to loop at the elevated level in the Terminal instead of "dead-ending" as at present, the unloading of same being similar to Dudley Street Station, east loop. All traffic will be in the same general direction and much confusion thereby avoided. The entire changes will be completed by September first.

East Cambridge Extension.—This work is finished and was opened to the public on June 1st. Surface cars of the semi-convertible type from Cambridge and Somerville to the subway are being operated over this structure, thereby avoiding the constant delays of the past through Lowell and Brighton Streets because of the heavy teaming to and from the Boston & Maine freight houses.

Dover St. Station.—Work has commenced on the extensive alterations at this point. As previously stated in these columns the main elevated tracks in the vicinity of Dover Street are to be drawn together to 12 feet on centers and two side platforms substituted for the present inter-track station. To accomplish this end a temporary station is being built a couple of hundred feet south of Dover Street. This station is constructed entirely of wood and is supported on the present steel track structure without the addition of any longitudinal girders or columns.

The new station contemplates the construction of 4 new entrance stairways from the Dover Street sidewalks. All of the present stairways to Washington Street are later to be used for exit only. A centre waiting room will be built under the track structure and over the intersection of Dover and Washington Streets. The maintenance of elevated traffic during construction presents serious difficulties, the grade of the new tracks being raised 8 inches above the old ones in addition to a radical change in alinement. The new station should be in use before Thanksgiving of the present year.

New York, New Haven & Hartford Railroad.—*Reconstruction of Cohasset Narrows Bridge, Buzzards Bay, Mass.*—Work in progress.

Boston & Maine Railroad.—Work started on Elimination of Grade Crossings at Lynn, and on 3rd & 4th Tracks.

The Boston Terminal Company.—Extension of South Station Office Building: Construction nearing completion.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress: —

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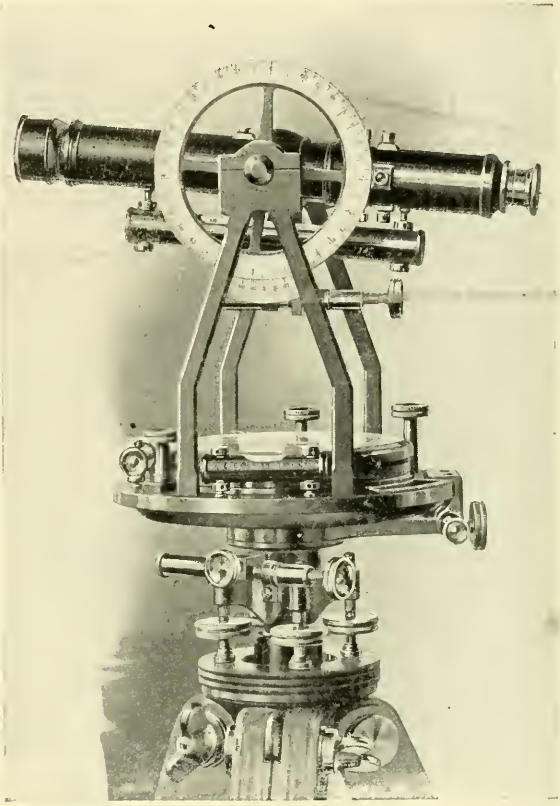

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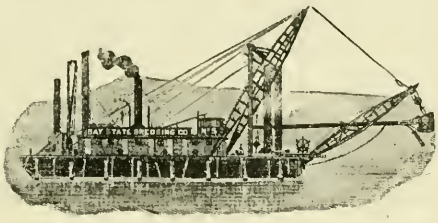

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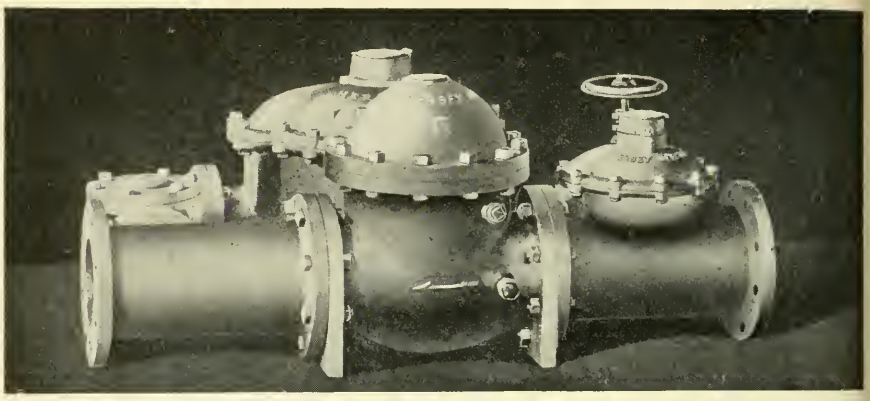

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BOSTON SOCIETY OF CIVIL ENGINEERS.

ORGANIZED JULY 3, 1848

MONTHLY BULLETIN.

NEW SERIES. SEPTEMBER, 1912 No 64

IMPORTANT ANNOUNCEMENTS IN THIS BULLETIN

September 18, 1912. Regular meeting at Chipman Hall at 7.30 p. m. Paper by Mr. Clarence T. Fernald on Construction of Charles River Bridge.

September 18, 1912. Excursion to Boylston Street Subway at 2 o'clock p. m.

October 16, 1912. Joint meeting conducted by the American Society of Mechanical Engineers.

Report of Committee on Code of Ethics.

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, September 18, 1912, at 7.30 P.M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting—To consider the report of the Committee on Code of Ethics, which was presented at the last meeting of the Society and printed in this *Bulletin*.

Mr. Clarence T. Fernald will read a paper entitled, "Notes on the Construction of the Charles River Bridge for the Boston Elevated Railway Company." The paper will be illustrated by lantern slides.

S. E. TINKHAM, *Secretary*.

EXCURSION SEPTEMBER 18, 1912

Through the courtesy of the engineers of the Boston Transit Commission and of the Hugh Nawn Contracting Co., the members of the Society are invited to inspect the work now in progress on the constructing of the Boylston Street Subway in the Back Bay on the afternoon of September 18.

This work embraces a large variety of interesting engineering features. The excavations include both deep and shallow cuts, the maximum being about fifty feet. In this part of the work steel sheeting has been used in lieu of underpinning the buildings and a good opportunity is afforded to observe the condition of the sheeting after having been driven through coarse gravel.

A cofferdam has been built across Muddy River to lay dry the site of the subway location and work is proceeding at this point on the construction of the masonry.

The subway passes under the Stony Brook channels and work on this feature is also under way.

In another part of the work bank piles are used to support the sides of the excavations in shallow cut.

A large yard has been secured by the contractors on Charlesgate East, where the central concrete plant is located and where the reinforcing rods are bent for the various parts of the work.

Steel forms are used on a large part of the concrete work.

Members will meet at the foot of Newbury Street at the Fens at 2 o'clock p. m.

EXCURSION COMMITTEE.

OCTOBER MEETING OF THE SOCIETY

On October 16, 1912, a joint meeting will be held with the American Institute of Electrical Engineers and the American Society of Mechanical Engineers, under the direction of the latter Society.

It is expected that Mr. Hugh L. Cooper, Vice-President and Chief Engineer, Mississippi River Power Company, will read a paper describing the Water Development at Keokuk, Iowa. The paper will be illustrated by lantern slides.

REPORT OF COMMITTEE ON CODE OF ETHICS

The code is intended to establish certain general principles and rules of action for the members of the Society.

I.

Engineers should encourage sound engineering learning and training in the scientific schools and in actual work.

II.

The success of engineers depends upon their moral character, scientific attainments, industry, integrity and business talent. The kind of competition prevailing in ordinary business transactions cannot exist among engineers without diminishing their usefulness and lowering the dignity and standing of the profession.

III.

The first duty of engineers is to their clients or employers, who have a right to expect that the portion of their business entrusted to the engineer will receive careful investigation and intelligent treatment, and that any special information derived by the engineer during his employment, will be considered confidential.

IV.

Engineers in their professional relations should be governed by strict rules of honor and courtesy. Their conduct toward each other should be such as to secure mutual confidence and good will.

(*a*) They should take no step with a view to divert to themselves the clients or work of other engineers.

(*b*) If a client should desire to transfer his work to another engineer, it is his privilege to do so, but the engineer in

charge should be given notice, with the reason for the same, of such change by the client, and the engineer to whom it is transferred should, before accepting the work, communicate with the engineer in charge, in order that there may be no bad feeling caused through misunderstanding.

(*c*) All communications should be made through a responsible head, unless another has been designated to act for him.

(*d*) An attempt should not be made to secure the services of assistants of other engineers, without communicating first with the principal in order to ascertain if such action will embarrass him.

(*e*) An assistant should not accept employment with another engineer without first consulting his superior.

(*f*) A superior should not stand in the way of advancement of a subordinate.

(*g*) The criticism of another's work should be broad and generous. The success of one member brings credit to the profession, and the failure of one, discredit to the whole.

(*h*) The attitude of superiors to subordinates should be that of helpfulness and encouragement.

The attitude of subordinates to superiors should be one of loyalty, free from captious criticism.

The treatment of each by the other should be open and frank.

(*i*) The engineer should be willing to assume his proper share of public work and render such assistance as is possible for the general good of the community.

V.

Consultations should be encouraged in cases of doubt or unusual responsibility. The aim should be to give the client the advantage of collective skill. Discussions should be confidential. Consulting engineers should not say or do anything to impair the

confidence in the regular engineer, unless it is apparent that he is wholly incompetent.

VI.

With the understanding and consent of their clients, engineers may beforehand place any value on their services deemed proper.

Fees may be made upon a per diem, monthly or yearly basis, or as a fixed sum or upon a percentage basis. In addition a retainer may be charged.

It is desirable that a definite agreement be made in advance as to the fee and the extent of the work to be done, so as to avoid subsequent misunderstanding. The period of time should be designated during which the agreed fees shall apply and beyond which an additional or modified charge may be made.

VII.

Engineers should promptly inform their clients of any business connections, interests or circumstances which might prevent them from giving an unprejudiced opinion.

They should not receive commissions or any remuneration other than their direct charges for services rendered their clients.

In advertising, they should avoid, as far as possible, commercial methods.

VIII.

Engineers acting as experts in legal and other cases, in making reports and testifying, should not depart from the true statement of results based on sound engineering principles. To base reports or testimony upon theories not so founded and thereby produce erroneous results, is highly unprofessional and brings discredit on the profession, and upon the engineers guilty of such conduct.

The attitude of engineers toward contractors should be one of helpful co-operation and tactfulness, combined with just and firm criticism. They should assume a judicial attitude toward both parties to the contract.

X.

As the lines of distinction between the various branches of engineering are becoming less marked, an intimate relation between them should be encouraged.

CHARLES T. MAIN,
FREDERIC P. STEARNS,
GEORGE B. FRANCIS,
CHARLES R. GOW,
CHARLES B. BREED,
Committee.

APPLICATIONS FOR MEMBERSHIP

[September 11, 1912]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

BOAS, BENJAMIN, Dorchester, Mass. (Age 22, b. Boston, Mass.) Graduate and post-graduate of Mechanic Arts High School in the years 1907 and 1908, respectively, and graduate of Lowell Institute in 1911. From March, 1909, to March, 1910, with Whitman and Howard, Civil Engrs., Boston, on town layout, surveys, figuring and drafting in office; from May, 1910, to present time, with Metropolitan Water and Sewerage

Board in the engineering department of the water works. Refers to Dexter Brackett, C. F. Fitz, Jr., Clifford Foss, W. E. Foss, Channing Howard, F. L. Mason, B. A. Rich.

Coburn, William Haskins, Jefferson, Me. (Age 22, b. Boston, Mass.) Graduate of Mass. Inst. of Technology, 1912. Expects to return this fall as assistant in the civil engineering department, Mass. Inst. Tech. Refers to C. F. Allen, A. E. Burton, H. L. Coburn, Dwight Porter, C. M. Spofford and S. E. Tinkham.

Doherty, Philip James, Riverhill, West Concord, N. H. (Age 24, b. Charlestown, Mass.) Graduate of Somerville High, 1905, and has had special course in mathematics and applied mechanics, under A. J. Minor of Rhode Island State College. Three years mechanical engineering, under Mr. Ahearn, Cambridge, Mass.; over three years' practical experience in railroad engineering, B. & M. R. R. At present in charge of engineering and inspection of Bridge No. 121, Riverhill, N. H., and Bridge No. 17, Tilton, N. H. Refers to S. P. Coffin, Louville Curtis, B. W. Guppy, T. P. Perkins, J. W. Rollins and J. P. Snow.

Guiney, John A., Boston, Mass. (Age 29, b. Boston, Mass.) Attended Boston English High School from Sept., 1898, to June, 1900; Boston College High School from Sept., 1900, to June, 1901; Boston College from Sept., 1901, to June, 1902; Boston Evening Drawing Schools during winters of 1903 to 1905; Surveying School Boston Y. M. C. A. during winter of 1906; and Lowell School for Industrial Foreman from 1908 to 1909. From 1902 to 1907 with James Tucker & Sons Co., Boston, a firm engaged in the heating and ventilating business. In 1907 employed by the Metropolitan Park Commission as rodman. From 1909 to 1911 with Harbor and Land Commissioners as transitman. At present with the Directors of the Port of Boston as transitman. Refers to D. A. Ambrose, C. S. Bryer, J. N. Ferguson and J. B. Russell.

Hurley, Herbert Daniel, Melrose, Mass. (Age 28, b. Boston, Mass.) Graduate of University of New Brunswick in 1906. Eight months, from 1905 to 1906, with City of Melrose, as inspector and instrumentman; 1906 to 1907 with Pennsylvania R. R., instrumentman on track elevation; six months of 1908 with Eastern British Columbia R. R., instrumentman on construction; six months of 1908 and 1909 with North Coast R. R. as draftsman on construction; ten months of 1909-1910 with Southern Pacific R. R. as draftsman on M. of W.; nine months of 1910-1911 with San Dieg & Arizona R. R. as profileman; four months of 1911 with Clear Lake R. R. as instrumentman on location; eighteen months of general surveying, subdivision, drainage, etc. At present employed by the Directors of the Port of Boston as instrumentman. Refers to E. M. Blake, J. N. Ferguson, F. W. Hodgdon and J. B. Russell.

Iverson, Arndt Thomas, Montreal, Canada. (Age 31, b. Fredriksstad, Norway). Graduate of Fredriksstad School of Engineering Sept., 1901. From April, 1903, to February, 1911, with Henry F. Bryant of Brookline as assistant with the exception of a few months with J. H. Sullivan Co., Brighton; in March, 1911, started in business for himself and August of same year went to Montreal, Canada. At present engineer for the Redpath Improvement, Hampstead Limited, Monkland Limited, The Canadian Northern R. R. Land Co., etc. Refers to H. F. Bryant, David Sutton, Harry Varney and R. H. Whiting.

Lawrence, Beardsley, Boston, Mass. (Age 25, b. Short Hills, N. J.) From Sept., 1907, to March, 1909, at Mass. Inst. of Technology. Two months of Summer of 1909 with Charles River Basin Comm. as rodman; Oct., 1909, to June, 1912, with Met. Water & Sewerage Board. At present with the San Domingo Light & Power Co., Santiago, Santo Domingo, engaged as engineer. Refers to J. N. Ferguson, Clifford Foss, W. E. Foss, B. A. Rich and A. E. Tarbell.

Maddox, Austin Louis, Norwood, Mass. (Age 26, b. Ellsworth, Me.) B. S. in civil engineering from University of Maine, June, 1910. Summer of 1907 with W. E. Baker & Co., New York City, as chainman on preliminary survey for electric road; Aug., 1910 to Sept., 1911, with engineering department of Maine Central R. R., and since Sept., 1911, with Winslow Bros. & Smith Co., as engineer in charge of construction of a masonry core dam. Refers to H. S. Boardman, W. H. Norris, G. A. Smith and L. A. Taylor.

McCormick, John Henry, Jr., Albany, N. Y. (Age 26, b. Albany, N. Y.) Graduate of High School, and from 1908 to 1912, home study in an evening Technical School, including reinforced concrete, hydraulics and bridges. February, 1904, with the State of New York Department of State Engineers and Surveyor, as axeman; Sept., 1906, appointed tracer; March, 1908, appointed civil engineering draftsman; 1904 to 1005, engaged in general office work in the Drafting Bureau; 1906 and 1907, with the Bureau of Hydraulics, in charge of parties engaged in stream gauging work; 1908 to present time in the Bureau of Locks, designing and estimating plain and reinforced concrete structures such as locks, dams, etc., in connection with the Barge Canal. Refers to J. F. Callahan, T. R. Hazelum, H. M. Johnson and W. T. Wiley.

Mosher, Percival Hildreth, Hyde Park, Mass. (Age 33, b. East Cambridge, Mass.) Graduate of University of Maine, 1902, with B. S. degree, and in 1907 received C. E. degree. June to Nov., 1902, with Portland and Rumford Falls Ry. as instrumentman on location in Province of Quebec; Nov., 1902, to Feb., 1903, with Chas. Fenn, Portland, Me., on general survey work; Feb., 1903, to Jan., 1905, with Ill. Cent. R.

R. as track apprentice, foreman, rodman and division engineer (all on maintenance); Jan., 1905, to Jan., 1906, in constructing and engineering business in Memphis, Tenn.; Jan., 1906, to Sept., 1907, with Memphis Park Comm., engr. of Parkway Construction and asst. supt.; Sept., 1907, to May, 1910, with Metcalf & Eddy as asst. engineer; May, 1910, to July, 1912, with Met. Water and Sewerage Board as inspector of water pipe laying and masonry. At present with Boston Transit Comm. as inspector on Sec. A, Dorchester Tunnel. Refers to H. P. Eddy, Clifford Foss, B. A. Rich and C. W. Sherman.

O'Neil, Arthur Edwin, Watertown, Mass. (Age 48, b. Watertown, Mass.) Graduate of Watertown Schools in 1881; from 1881 to 1900, student in Mechanical and Electrical, I. C. S.; 1900 to 1904, at Lowell Inst. From 1881 to 1886 with Newton Machine Co. as machinist and engineer; 1886 to 1894 with Nonantum Worsted Co. as master mechanic; 1894 to 1906 with Newton & Watertown Gas & Electric Co. as chief engineer; 1906 to present time with Metropolitan Water Works as supt. of pumping stations. Refers to Dexter Brackett, A. O. Doane, Clifford Foss, W. E. Foss and W. F. Learned.

Peters, Anthony Winfred, Moundsville, W. Va. (Age 33, b. Boston, Mass.) Graduate of Mass. Inst. of Technology, 1901. From 1901 to 1903, on Hudson River Water Power Co.'s Development at Spier Falls, N. Y., as transitman and asst.; 1903 to 1905 with Chas. E. Collins, Phila., Pa., as asst. engr., on Dolgeville, N. Y. Sewer System; 1905 to 1907 with Consolidated Water Co. of Utica, N. Y., as asst. engr., 1907 to 1909 on Connecticut River Power Co.'s Development at Brattleboro, Vt.; winter of 1909, in office of J. G. White; 1910, as asst. engr. on construction of railroad, preliminary to Reclamation Work at Sebastian, Fla.; 1911 with Chas. E. Collins as resident engr. in charge of construction of Moundsville, W. Va., Sewer System. Refers to W. M. Foster, E. A. W. Hammatt, G. E. Howe, A. L. Plimpton, T. F. Richardson and J. W. Rollins.

Pitman, Lawrence Minot, Arlington Heights, Mass. (Age 24, b. Providence, R. I.) Graduate of Harvard University (Scientific School) with A. B. degree, 1909; and Graduate School of Applied Science (Harvard), 1908 to 1909. From July to Oct., 1909, with Copper Queen Cons. Mining Co.; Oct., 1909, to Dec., 1910, with Calumet & Arizona Mining Co.; and Oct., 1911, to present time with Boston Transit Commission in charge of line and grade party, Sec. 3, Boylston Street Subway. Refers to E. S. Davis, J. B. Flaws, J. T. Frame, J. R. Freeman, L. B. Manley and G. F. Swain.

Powers, Charles Franklin, Dorchester, Mass. (Age 38, b. Orange, Mass.) Graduate of Orange High School in 1893; at Worcester Polytechnic Inst. 1894 to 1895. Entered employ of State Board of Health

Sept., 1895; and since July, 1897, with Harbor and Land Comms. as rodman, transitman, leadsman and inspector; now asst. engr. junior grade. Refers to L. H. Bateman, J. N. Ferguson, F. W. Hodgdon, F. N. Wales and H. B. Wood.

Stearns, George Hermon, Boston, Mass. (Age 56, b. Mansfield, Mass.) Graduate of Harvard College, 1878; and 1879 to 1880 at Mass. Inst. of Technology. From 1881 to 1882 mining engr. in Arizona; 1882 to 1886, architectural engineering in Cleveland, Ohio; 1886 to 1894 with Boston Bridge Works, design and calculation; 1894 to 1895, architectural work with Shepley, Rutan & Coolidge; 1895 to present time with Boston Transit Comm. on general design and calculations; now asst. engr. in charge of structural design. Refers to H. A. Carson, E. S. Davis, A. W. Parker, G. F. Swain and J. R. Worcester.

Thorpe, George Hilton, Lowell, Mass. (Age 24, b. Philadelphia, Pa.) Graduate of Millville, N. J., High School, 1906. From July to May, 1907, with Millville Mfg. Co., Millville, as apprentice in machine shop, and student in civil engineering; July to Dec., 1907, with William Boardman, civil engineer of Philadelphia, Pa., as rodman; 1908 and 1909, assistant to city engineer at Millville; July and Aug., 1909, with Fred S. Hinds, mill engineer and architect at Boston, as draftsman on reinforced concrete and mill construction; Sept., 1909, to April, 1910, with W. N. Pike & Sons Construction Co., Lowell, Mass., as clerk and draftsman during the construction of large mill building; April, 1910, to present time with John A. Stevens, M. E., of Lowell, on design and construction of steam and hydroelectric power plants. Refers to F. M. Gunby, G. A. Nelson, E. F. Rockwood and M. B. Smith.

MINUTES OF MEETINGS

JUNE MEETING OF THE SOCIETY

Boston, Mass., June 20, 1912.—A regular meeting of the Boston Society of Civil Engineers was held at the Boston City Club, at 8.15 o'clock, President James W. Rollins in the chair, about 180 members and visitors present.

The reading of the record of the last meeting was by vote dispensed with.

The Secretary announced that the Board of Government had elected as Members of the Society, Messrs. Mark Linenthal and Richard Curtis Smith.

The report of the Committee of the Society appointed to prepare a Code of Ethics was presented and by vote ordered

to be printed in the next *Monthly Bulletin* of the Society.

The President then introduced Col. George W. Goethals, Chairman and Chief Engineer, of the Isthmial Canal Commission. Col. Goethals gave a most interesting account of the Panama Canal, reviewing carefully the history of the undertaking and describing fully, but in a wonderfully concise manner, the stupendous work in which he is engaged. His talk was illustrated by a very large number of lantern slides. At its conclusion the President expressed the deep appreciation of the Society of the honor accorded it by the speaker of the evening and extended to him the sincere thanks of its members.

The meeting was preceded by an informal reception and dinner at which Col. Goethals was the principal guest, about eighty members were presented.

S. E. TINKHAM, *Secretary.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

POSITIONS AVAILABLE

07 Assistant wanted in Civil Engineer's office to take charge of surveys and prepare plans for exhibit in court in Accident Cases.

08 Assistant wanted in Civil Engineer's office to test gauge of track at regular intervals at definite places on Street Railroad System.

MEN AVAILABLE

117. Age 31. Has had technical education in mechanical engineering. About ten years' experience largely in mechanical work. Salary desired, $2,500 per annum.

118. Age 18. Has had some experience as rodman. Desires position as rodman, chainman, or transitman. Salary desired, $40.00 per month.

119. Age 20. Student at Tufts College for three years. Has had two summers' experience; one in repair machine shop, the other in refrigeration plant of J. P. Squire & Co., East Cambridge.

121. Age 23. Graduate of Tufts College, Civil Engineering Department, 1912. Has had several summers' experience in municipal engineering, as chief of party, also inspector on sewerage construction and road work. Desires position as inspector or engineer on construction work. Salary desired, $18.00 per week.

122. Age 34. Graduate of M. I. T., Structural Design, 1901. Has had eight years' experience with structural engineering concerns. Desires position in structural and general building design.

123. Graduate of M. I. T., in class of 1890. Has had 22 years' experience in railway work, especially in electrical work.

124. Age 30. Three years' course in civil engineering at M. I. T. Has had two and one-half years' experience as surveyor, draftsman, and computer on harbor and river improvements with U. S. Government. For the past six years at work on mill and fireproof construction, steam and electrical work. Desires position as an assistant superintendent engineer or general contractor. Salary desired, $125.00 per month.

125. Age 22. Graduate Mechanic Arts High School. Attended Harvard College one year, and took courses in structures and railroad engineering at Franklin Union. Has had two years' experience as rodman, and eight months as draftsman. Desires position as rodman or transitman on construction work. Salary desired, $60.00 per month.

127. Age 23. Graduate of M. I. T., in civil engineering, 1912. Has had one summer's work as chainman, rodman, and

transitman on four-tracking of New York Central R. R. at Poughkeepsie. Desires position with contractor.

LIST OF MEMBERS

Additions

Linenthal, Mark .....193 Humboldt Ave., Roxbury, Mass.

changes of address

Bonnemort, Charles J. .....45 Walnut St., Dedham, Mass.
Brown, T. Morris, c|o The Lamson Co., 15 Madison Sq., No. N. Y., N. Y.
Drake, Henry P. .....Filtration Plant, Aspinwall, Pa.
Hall, Harry R. .....6 East Franklin St., Baltimore, Md.
Hazelum, Thomas R., c|o Barge Canal Commission, 304 Madison Ave.,
Macksey, Henry V. .....Carterville, Ga.
Manahan, Elmer G. .....15 Glen Ave., Mt. Vernon, N. Y.
Newton, Jewett B. .....Cohasset, Mass.
Parlin, Raymond W., American Water Works and Guarantee Co., 345 4th Ave., Pittsburgh, Pa.
Pierce, Charles H. ..U. S. Geol. Survey, Water Resources, Wash., D. C.
Pope, Lemuel .....Hudner Bldg., Fall River, Mass.
Ripley, Herbert L. .....Easton, Mass.
Trefethen, Ernest M., c|o N. Y. State Highway Commission, Binghamton, N. Y.
Tucker, Herman F. .....1319 Irving St., N. W. Washington, D. C.
Wood, Frederic J. .....57 Westbourne Terrace, Brookline, Mass. Albany, N. Y.

deaths

Cutter, Charles R. .....July 30, 1912
Read, Robert Leland .....June 5, 1912

LIBRARY NOTES

Recent Additions to the Library

U. S. Government Reports

Bureau of Education, Vol. 2, 1911. Annual Report.

Weather Bureau, 1910-11. Annual Report.

Public Roads Dept. Testing of Rock. Goldbeck and Johnson.

Bureau of Mines, 1911. Annual Report.

Bureau of Mines. Report on Purchase of Coal.

Bureau of Mines. Transmission of Heat into Boilers.

Panama Canal Traffic. Emory R. Johnson.

State Reports

New York Public Service Commission. Vols. 2 and 3 of

1910. Annual Report.

Rhode Island. Annual Report of Commissioner of Dams and Reservoirs for 1911.

City and Town Reports

Atlantic City, N. J. Annual Report of Water Commissioners for 1911.

Bangor, Me. Annual Report of Water Board for 1911.

Beverly, Mass. Annual Report of Water Board for 1911.

Concord, Mass. Annual Report of Water and Sewer Commissioners, 1907 to 1912.

Erie, Pa. Annual Report of Water Commissioners for 1911.

Fall River, Mass. Annual Report of City Engineers for 1911.

Fitchburg, Mass. Semi-Annual Report of Sewage Disposal Commissioners, 1911.

Fitchburg, Mass. Annual Report of Water Dept. for 1911.

Holyoke, Mass. Annual Report of Water Commissioners for 1911.

Kansas City, Mo. Annual Report of Fire and Water Commissioners for 1911.

Lowell, Mass. Annual Report of Water Board for 1911.

Lynn, Mass. Annual Report of Water Works Commissioner for 1911.

Manchester, N. H. Annual Report of Water Commissioners for 1911.

New Orleans, La. Semi-Annual Report of Sewerage and Water Board, 1911.

Newton, Mass. Annual Report of City Engineer for 1911.

Providence, R. I. Annual Report of City Engineer for 1911.

Somerville, Mass. Annual City Report for 1911.

Springfield, Mass. Annual Report of City Engineer for 1911.

Woonsocket, R. I. Annual Report of Water Commissioners for 1911.

Miscellaneous

Landscape Architecture. Stephen Child.

Steam Turbines. Stodola and Lowenstein. Gift of Wm. V. Moses.

Machine Design. Forrest R. Jones. Gift of Wm. V. Moses.

Sewage Disposal. Geo. W. Fuller.

Hütte. 2 volumes. Gift of Wm. V. Moses.

Highway Engineering Hand Book. Harger and Bonney.

Modern Destructor Practice. W. F. Goodrich.

Gas and Petroleum Engines. Wm. Robinson.

Pennsylvania and Its Activities. Whidden and Schoff.

Philadelphia. Taylor and Schoff.

National Board of Fire Underwriters. Mainly supplementary reports on the following cities and towns: Adrian, Mich.; Akron, O.; Albany, N. Y.; Baltimore, Md.; Battle Creek, Mich.; Bay City, Mich.; Bridgeport, Conn.; Canton, O.; Chicago, Ill.; Chicago Heights, Ill.; Detroit, Mich.; Evanston, Ill.; Flint, Mich.; Glens Falls, N. Y.; Hamilton, O.; Hannibal, Mo.; Henderson, Ky.; Jackson, Mich.; Kalamazoo, La Crosse, Wis.; Lansing, Mich.; Lima, O.; Newark, O.; Madison, Wis.; Manistee, Mich.; Muskegon, Mich.; Newton, Mass.; Oak Park, Ill.; Ogdensburg, N. Y.; Owensboro, Ky.; Paducah, Ky.; Plattsburg, N. Y.; Portsmouth, O.; Rahway, N. J.; Saginaws, Mich.; Springfield, O.; Youngstown, O.; Troy, N. Y.

While no immediate prospect of the permanent rearrangement of the books on the shelves can be held out, it is hoped that by the October meeting, the steel stacks and the addition to the plan case will be in place, and the books transferred.

Frederic I. Winslow, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

United States Government—New Naval Hospital at Chelsea is nearly completed.

At the Naval Magazine, Hingham, Mass., it is expected that the channel will be dredged and a concrete magazine building constructed as soon as the work can be advertised.

The pontoon for the new 150 ton floating crane has been delivered at the Navy Yard and the erection of the superstructure and machinery will be commenced at once.

Commonwealth of Massachusetts.—METROPOLITAN WATER AND SEWERAGE BOARD, WATER WORKS.—The work of extending the water pipe tunnel under the Mystic River at Chelsea Bridge North by pneumatic process has been completed and the work of laying the 24-inch pipe therein is now in progress.

The roof is being placed on the Southern Extra High-service Pumping Station on Hyde Park Avenue, Hyde Park, and the work of erecting the engines therein will be in progress during the latter part of the month.

SEWERAGE WORKS.—Work on a new by-pass and additional screening machinery at the East Boston Pumping Station is now in progress.

Section 67 of New Mystic Sewer in Medford and Winchester will be let October 4, 1912.

METROPOLITAN PARK COMMISSION.—Plans and specifications are being prepared for bridge over Charles River at North Harvard and Boylston Streets, Boston and Cambridge, known as Stadium Bridge.

Reconstruction and resurfacing of roads in progress.

Boston Transit Commission.—The Boylston Street Subway is under contract from the beginning of the open incline at Kenmore Street in Commonwealth Avenue to Boylston

Street at the Public Library. Section 1, which extends from Kenmore Street to Massachusetts Avenue, is about half completed. Work in Section 2 under the yard of the Public Works Department has been begun. Construction in Section 3 from Hereford Street to Exeter Street is about fifty per cent. completed. The Hugh Nawn Contracting Co. is the contractor.

Work on the Dorchester Tunnel is in progress under Winter Street, Section A. The depth of the bottom of the tunnel is about 40 feet below the street surface, on account of the line having to go under both the Tremont Street Subway and the Washington Street Tunnel. Nearly all of the buildings on Winter Street are to be underpinned to a depth of from 25 to 30 feet below their present foundations. The Coughlan & Sheils Company is the contractor for the construction of the section. The supporting of the buildings is being done by Soley & Blair, Inc., by sub-contract.

City of Boston.—Public Works Department, Highway Division, Paving Service.—Work is now in progress on the following streets:—Washington Street, from Dimock Street to Walnut Park, granite block paving; Washington Street, from Blue Hill Avenue to Talbot Avenue, wood block paving; Park Street, from Dorchester to Geneva Avenues, granite block paving; Dudley Street, from Guild Row to Harrison Avenue, wood block paving; Dartmouth Street, from Bridge to Huntington Avenue, bitulithic paving; Canterbury Street, from Poplar Street to R. R. Bridge, macadam surface; Parker Street, from Edgar to Caldwell Streets, bitulithic paving; Southern Avenue, from Washington to Bernard Streets, macadam surface; Ashmont Street, from Washington Street to Dorchester Avenue, artificial stone walks; Hammond Street, from Tremont Street to Shawmut Avenue, wood block paving; Dighton Street, from Chestnut Hill Avenue to Washington Street, artificial stone walks; McLellan and Fowler Streets, Dorchester, artificial stone walks; Edgehill Street, from Gay Head to Round Hill Streets, edgestone; Centre Street, from Washington to Seaborn Streets, artificial stone

walks; Kilton Street, from Harvard to Park Streets, artificial stone walks; Morton Street, from Canterbury to Harvard Streets, filling; Lauriat Avenue, from Norfolk Street to Blue Hill Avenue, artificial stone walks; Conant Street, from Parker Street to Huntington Avenue, macadam surface.

Sewer and Water Division, Sewer Service.—Stony Brook Conduit, Section 8, in Hyde Park Avenue, private land, N. Y., N. H. & H. R. R. Co., and Washington Street, West Roxbury, 17′ x 13′ Conduit being built under railroad tracks and heavy retaining wall.

Bridge and Ferry Division.—*Meridian Street Bridge, East Boston to Chelsea.*—The rebuilding of this bridge is nearly completed, work on the upstream sidewalk only remaining to be done. Team and street car traffic was resumed on this bridge on August 22.

Chelsea Bridge North.—All traffic has been transferred to the temporary bridge and the portion of the old bridge to be rebuilt has been removed. Dredging for the foundation of the new draw pier is now finished and the cofferdam or exterior curbing for the concrete is in position. For the next four or five weeks, the work in progress will be depositing concrete and laying the granite masonry for the centre pier for the draw span, raising the approaches on both sides of the draw and building the timber draw fender pier.

Directors of the Port of Boston.—Pier No. 6 (Fish Pier), South Boston.—Laying masonry by divers under water was completed on July 31st last, and about nine-tenths of the work required under contract is completed. Holbrook, Cabot & Rollins Corporation, contractor.

The making of wash drill borings by Charles R. Gow Co. for determining the location of ledge off the Commonwealth's property in South Boston was completed on August 20th last.

A contract has been made with Mr. John T. Letteney to dredge channels in Quincy Bay leading to the Squantum and Wollaston Yacht Club Houses.

Bids have been received for dredging two areas in front of the Grand Junction wharves extending from the wharves to the 35-foot channel of the United States Government.

A hydraulic survey has been made of the Town River in the City of Quincy.

Preliminary surveys for a possible location of a belt line around the city are in progress.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

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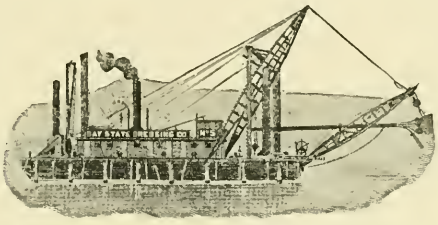

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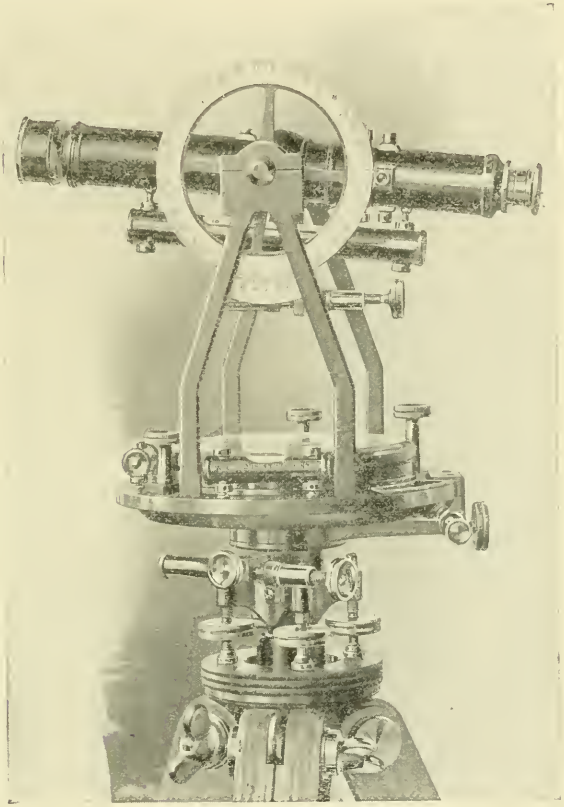

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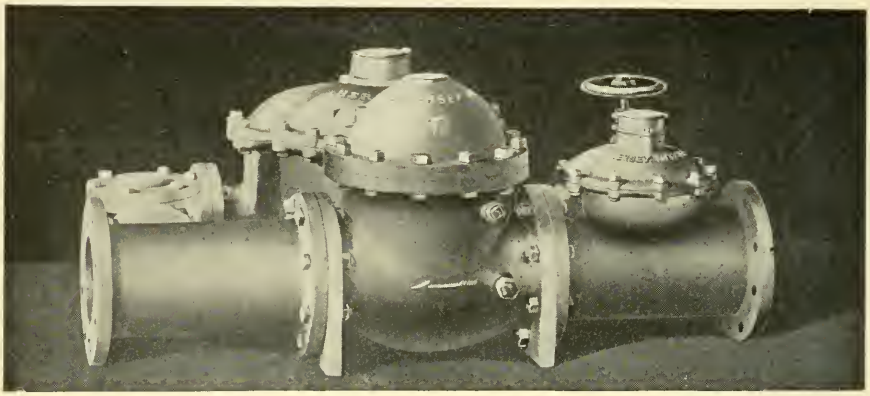

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NEW SERIES. OCTOBER, 1912 NO 65

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, October 16, 1912, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Business of the Meeting:—To act on the following vote which was passed at the last meeting of the Society,

"Voted:—That a sum not exceeding $2,000 be appropriated from the permanent fund of the Society to be expended under the direction of the Board of Government for furnishing and fitting up the Society's rooms."

Under the By-Laws it requires an affirmative vote of two-thirds at two successive regular meetings to make an appropriation from the permanent fund.

Inasmuch as the paper of the evening will be presented by the Society of Mechanical Engineers at 8 o'clock, members are urged to be present at the hour named for calling the meeting, that is, 7.30 o'clock, in order that the business of the Society may be transacted before 8 o'clock.

At 8 o'clock a joint meeting will be held with the Boston Section of the American Institute of Electrical Engineers and the American Society of Mechanical Engineers, under the direction of the latter Society.

Mr. Hugh L. Cooper, Vice-President and Chief Engineer, Mississippi River Power Company, will give an address entitled "Damming the Mississippi." The address will be illustrated by lantern slides.

S. E. TINKHAM, *Secretary.*

NOVEMBER MEETING OF THE SOCIETY

At the meeting of the Society to be held Wednesday, November 20, 1912, Mr. Frank W. Hodgdon will give a talk entitled "Some Incidents of Survey of Mountains Near the Boundary between Costa Rica and Panama."

APPLICATIONS FOR MEMBERSHIP

[October 9, 1912]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Brooks, Clarence Morris, Keene, N. H. (Age 31, b. Charlestown, N. H.) Graduate of Keene, N. H., High School in 1899, and postgraduate course in 1900. From May, 1900, to Sept., 1900, rodman with N. Y. State Engineer Corps. Entered U. S. Military Academy at West Point in June, 1902, and honorably discharged in June, 1903. Entered employ of N. H. Highway Dept. in 1906, and was made Division Engineer in January, 1910, which position he now holds. Refers to J. C. Chase, A. W. Dean, E. O. Hathaway, B. A. Robinson, and G. R. Wadsworth.

Holmes, Albert Joseph, Boston, Mass. (Age 30, b. Boston, Mass.) Educated in public schools of Boston. Rodman for Boston Transit Commission, East Boston Tunnel, for about two years; draftsman and

assistant engineer for Charles River Basin Commission, about seven years; designing engineer, Sewage Disposal Commission, Fitchburg, Mass., about two years; and at present with Lockwood, Greene & Co., mill engineers, as designer. Refers to H. P. Eddy, D. A. Hartwell, H. A. Miller, and E. C. Sherman.

Olson, Edward Frederick, Medford, Mass. (Age 26, b. East Cambridge, Mass.) Graduated from Tufts College, June, 1912. From April, 1904, to May, 1906, and from June, 1909, to Sept., 1910, draftsman with Geo. F. Blake Co.; May, 1906, to Sept., 1907, mechanical draftsman with B. F. Sturtevant Co.; and June to Sept., 1911, structural draftsman with Lockwood, Greene & Co.; and at present structural draftsman with Stone & Webster Engineering Corp. Refers to S. L. Connor, E. H. Rockwell, F. B. Sanborn, and Samuel Schwartz.

Preble, James Jarvis, Waltham, Mass. (Age 24, b. Waltham, Mass.) Received B. S. degree from Harvard University, civil engineering course, 1910. Summer of 1909 on construction work for Wm. Wheeler, Civil Engineer; from Sept., 1910, to Sept., 1912, in field and office work for Metropolitan Water Board; and now employed as engineer for Metropolitan Sewerage Works. Refers to C. F. Fitz, Jr., Clifford Foss, B. A. Rich, and William Wheeler.

Schlemm, Leonard Ernest, Montreal, P. Q., Canada. (Age 34, b. Altona, Prussia.) Course in science at Hanover Polytechnic, 1897-1899; and in civil engineering at Mass. Inst. of Technology 1900-1902. 1902-1903, rodman, topographer, etc., with Gulf, Col. & Santa Fe Ry.; 1904-1907, topographer and assistant engineer with Chicago & North Western Ry.; from 1907 to Aug., 1911, associated with Brett & Hall, landscape architects, Boston, having charge of all matters relative to engineering connected with development at Prince Rupert, B. C., the Grand Trunk Pacific Ry. terminus; and since Aug., 1911, has had an office at Montreal, and has had charge of the development of numerous properties in Canada. At present is attending to the construction of sewers, drains, roads, &c., at Redpath, development of 1200 acres as a town site at North Toronto for Canadian Northern Ry., and development of property at St. John, N. B. Refers to H. F. Bryant, A. E. Burton, R. E. Curtis, I. E. Moultrop, and David Sutton.

Smith, Edward Richard, Malden, Mass. (Age 26, b. Brooklyn, N. Y.) Graduate, Mass. Inst. of Technology, 1908, in civil engineering. For the last three years with D. C. & Wm. B. Jackson, consulting engineers, Boston. Refers to H. T. Gerrish, F. M. Gunby, D. C. Jackson, R. W. Parlin, and Dwight Porter.

Sprague, Harry Roger, Lowell, Mass. (Age 28, b. Pittsfield, Me.) Graduate, Lowell High School. First employed as an assistant in office

of Smith & Brooks, civil engineers, Lowell; in 1905 with A. T. Safford, civil engineer; from 1906 to 1908 with Stone & Webster, as head of party on surveys for water power development at Columbus, Ga.; in 1908 was engaged in city surveying in office of City Engineer, Lowell, in 1909 was assistant to engineer on street work, and in 1911 became assistant engineer in charge of street work, Lowell, which position he now holds. Refers to George Bowers, G. W. Mansur, A. T. Safford, and M. B. Smith.

MINUTES OF MEETINGS

SEPTEMBER MEETING OF THE SOCIETY

Boston, Mass., Sept. 18, 1912.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 8 o'clock, President James W. Rollins in the chair; 75 members and visitors present.

By vote the reading of the records of the May and June meetings was dispensed with and the records as printed in the *Bulletin* were approved.

On motion of Mr. Hodgdon the report of the Committee on Code of Ethics, presented at the last meeting and printed in the September *Bulletin*, was accepted. After a discussion and several changes suggested in the phraseology of some of the articles in the proposed code, it was voted that the report be referred back to the Committee to consider the suggestions which had been offered and any others which may be submitted, and that it be requested to present the code in a revised form at the next meeting.

The President stated that he should rule that the adoption of a code of ethics substantially in the form already presented by the Committee would not be subject to the provisions of the Constitution in reference to endorsement of propositions.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:

Members:—Richard Brunel, Herbert Winfield Dyer and Calvin Crosby Sears, and as a *junior*, Henry Lowell Crocker.

The Secretary also announced the deaths of the following members of the Society:

George I. Leland, died May 16, 1912.
J. Edwin Jones, died June 3, 1912.
Robert Leland Read, died June 5, 1912.
Charles R. Cutter, died July 30, 1912.

By vote the President was requested to appoint committees to prepare memoirs. The President has constituted these committees as follows: On memoir of George I. Leland, Mr. William S. Johnson; on memoir of Robert L. Read, Mr. Desmond FitzGerald; on memoir of J. Edwin Jones, Messrs. F. L. Miner and E. D. Treadwell; and on memoir of Charles R. Cutter, Mr. Edgar S. Dorr.

The Secretary also reported that the Board of Government had appointed the following committee to recommend the award of the Desmond FitzGerald Medal for the best paper published by the Society during the year ending with the month of September, 1912; Messrs. J. R. Worcester, L. C. Wason, and H. J. Hughes.

On motion of Prof. Moore, the thanks of the Society were voted to the Engineers of the Boston Transit Commission and to the Hugh Nawn Construction Co., for courtesies extended to its members on the occasion of the visit to the Boylston Street Subway this afternoon.

The President called attention to the addition which had been made to Society quarters and to the necessity of providing new and additional furnishings for the rooms. The Board of Government had considered the matter and had voted unanimously to recommend to the Society that a sum not exceeding $1200 be appropriated from the permanent fund of the Society to be expended under the direction of the Board for furnishing and fitting up the Society's rooms.

After an explanation by the Secretary of the needs of the Society for additional furniture, book stacks, and etc., Mr. Johnson moved that the recommendation of the Board of Government be adopted. Mr. Howe suggested that the sum needed be borrowed from the permanent fund to be paid back from the current fund whenever possible, and he moved as an amendment:—That the Board of Government be authorized to borrow the sum of $1200 from the permanent fund to be expended

in furnishing and fitting up the rooms. On a vote being taken the amendment was lost.

Mr. Cowles moved to amend the recommendation by increasing the sum appropriated from $1200 to $2000, and on a vote being taken, the amendment was adopted, 23 in favor and 18 against.

The following vote was then adopted, 40 in favor and 4 opposed: Voted:—That a sum not exceeding $2000 be appropriated from the permanent fund of the Society, to be expended under the direction of the Board of Government for furnishing and fitting up the Society's rooms.

The President stated that under the Constitution it was necessary that an appropriation made from the permanent fund must be passed by a two-thirds vote at two successive regular meetings.

Mr. Clarence T. Fernald then read the paper of the evening entitled, "Notes on the Construction of the Charles River Bridge for the Boston Elevated Railway Company." The paper was illustrated by lantern slides.

After a short discussion in which the President, Mr. G. A. Kimball, Mr. F. H. Fay and others took part, the meeting adjourned.

S. E. Tinkham, *Secretary.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

MEN AVAILABLE

128. Age 39. Ten years' experience in general engineering work, including sewers, water works, hydrographic court work, road construction, land surveys, &c., also ten years' ex-

perience in mining engineering, including surveys, planning, superintending development, stripping and construction work. Desires position as assistant engineer, inspector, superintendent, or with contractor.

129. Age 30. Graduate Thayer School of Civil Engineering at Dartmouth College. Three years' experience in general surveying, including railroad surveying; work for Harbor and Land Commission of Massachusetts, also with Costa Rica-Panama Arbitration Commission on boundary survey in Costa Rica and Panama. Desires position on construction work.

LIST OF MEMBERS

ADDITIONS

BRUNEL, RICHARD ....Care of J. R. Worcester, 79 Milk St., Boston, Mass.
CROCKER, HENRY LOWELL .....472 Mass. Ave., Boston, Mass.
DYER, HERBERT WINFIELD .....24 West St., Boston, Mass.
SEARS, CALVIN CROSBY .....15 Sycamore St., Somerville, Mass.

CHANGES OF ADDRESS

ARMSTRONG, KENNETH P. .....Bay State House, Worcester, Mass.
DEANE, A. MARSHALL .....20 Bradfield Ave., Roslindale, Mass.
DOTTEN, WILLIAM J. .....Town Hall, Brookline, Mass.
GREENOUGH, MAURICE B., Instructor Department of Engineering, Rhode Island State College, Kingston, R. I.
POLLEYS, WILLIAM V. .....147 Milk St., Boston, Mass.
SKINNER, FENWICK F. .....913 Metropolitan Bldg., Vancouver, B. C.
STRADLING, DAVID W. .....1217 Tennessee St., Lawrence, Kansas
WILLARD, ERNEST C. .....Wheeldon Annex, Portland, Oregon

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Texas and Colorado. Art of Primary Triangulation. W. Bowie.

Effect of Topography and Isostatic Compensation on Intensity of Gravitation. W. Bowie.

State Reports

Indiana. Annual Report of State Board of Health for 1910.

New Jersey. Annual Report of State Board of Health for 1911.

City and Town Reports

Hartford, Conn. Annual Report of Water Commissioners for 1911.

Pittsburg, Pa. Report of Flood Commission.

Reading, Pa. Annual Report of Water Commissioner for 1911.

St. Louis, Mo. Annual Report of Water Commissioner for 1911.

Salt Lake City. Annual City Reports for 1911.

Miscellaneous

American Society of Mechanical Engineers. Transactions for 1911.

Report on Fire Hose by National Fire Protection Association.

The additional case for the U. S. Government Topographical sheets has been purchased and set up in the library. The sheets will soon be distributed into the larger space.

Two steel book stacks are expected to arrive about October 21st.

With the employment of a permanent assistant librarian from October 21, the books will be placed and rearranged in enlarged quarters.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Water and Sewerage Board, *Water Works.*—The work of laying 24-inch and 30-inch water pipes at tunnel under Mystic River at Chelsea Bridge North, and of erecting engines at the Hyde Park Pumping Station, will be in progress during the early part of the month.

Sewerage Works.—Additional Screen Machinery at East Boston Pumping Station with Bypass, etc., are being installed.

Bids were opened October 4th, on Section 67, New Mystic Sewer. This work is situated in Medford and Winchester.

Metropolitan Park Commission.—Work of reconstruction and resurfacing of roads in progress.

City of Boston.—Public Works Department, Sewer and Water Division, Sewer Service.—Stony Brook Conduit, Section 8, private land, N. Y., N. H. & H. R. R., and Washington Street, West Roxbury, 17′ x 13′ conduit and 2′-8″ x 4′-0″ sewer being built under tracks and heavy retaining wall.

Bridge and Ferry Division.—*Meridian Street Bridge, East Boston to Chelsea.*—The rebuilding of this bridge is nearly completed, work on the upstream sidewalk only remaining to be done.

Chelsea Bridge North.—For the next few weeks, the work in progress will be depositing concrete and laying the granite masonry for the centre pier for the draw span, raising the approaches on both sides of the draw and building the timber draw fender pier.

Harvard Bridge.—The work of repaving the roadways of the fixed spans of this bridge is now in progress. The old

wood block paving has been removed from a portion of the bridge and the planking on which it rested has been taken up. This planking, which is 3-inch yellow pine treated by the creo-resinate process, has been found to be in such good condition after eleven years of service, that nearly all of it will be used again in the new floor. Those who are interested in wood preservatives will find it worth examining.

L-Street Bridge, South Boston.—The repairing and strengthening of this bridge for heavy street car traffic is now in progress.

Highway Division, Paving Service.—Work is now in progress on the following streets:—Providence Street, from Columbus Avenue; Western Avenue, from Market to Waverly Streets; Sachem Street, from Hillside Street to Parker Hill Avenue; Francis Street, at Peter Brigham Hospital; Maitland Street, from Beacon Street to B. & A. R. R.; Dalrymple Street, from Egleston to Boylston Streets; Knoll Street, from Walter to Selwyn Streets; Commerce Street, from Commercial Street to Atlantic Avenue; Clinton Street, from Commercial Street to Atlantic Avenue; Blandford Street, from Steps; Westerly Street, from Centre to Sunnyside Streets; Hendry Street, from Coleman to Clarkson Streets; Capen Street, from Norfolk to Evans Streets; South Street, from Centre to Roberts Streets; Arlington Street Extension; Fuller Street, from Washington Street to Dorchester Avenue; Kenneth Street, from Farrington Avenue to Beach Street; Park Street, Whitfield and Wheatland Avenue, Dorchester; Lauriat Avenue, from Norfolk Street to Blue Hill Avenue; Southern Avenue, from Washington to Bernard Streets; Vaughn Avenue, from Geneva Avenue to Devon Street; Park Street, from Dorchester Avenue to Geneva Avenue; Malcolm Street, from Pinckney to Mt. Vernon Streets; Washington Street, from Blue Hill Avenue to Talbot Avenue; Stuart Street, from Dartmouth Street to Trinity Place; Hammond Street, from Tremont Street to Shawmut Avenue; Canterbury Street, from Poplar Street to N. Y., N. H. & H. R. R.; Dudley Street, from Harrison Avenue to Guild Row.

Boston Transit Commission.—The Boylston Street Subway is under contract from the beginning of the open incline

at Kenmore Street in Commonwealth Avenue to Boylston Street at the Public Library. Section 1, which extends from Kenmore Street to Massachusetts Avenue, is about 70 per cent. completed. Work in Section 2 under the yard of the Public Works Department is progressing rapidly. Construction in Section 3 from Hereford Street to Exeter Street is about 60 per cent. completed. The Hugh Nawn Contracting Co. is the contractor.

Work on the Dorchester Tunnel is in progress under Winter Street, Section A. The depth of the bottom of the tunnel is about 40 feet below the street surface, on account of the line having to go under both the Tremont Street Subway and the Washington Street Tunnel. All of the buildings on Winter Street, except the new Gilchrist Building, have been underpinned to a depth of from 25 to 30 feet below their present foundations and the greater part of the excavation for this section of the tunnel has been done. The Coughlan & Sheils Company is the contractor for the construction of the section.

Directors of the Port of Boston.—Pier No. 6 (Fish Pier), South Boston.—By agreement, the Commonwealth is building Pier No. 6 for the Boston Fish Market Corporation, and this corporation will later erect its buildings thereon. About 92 per cent. of the work let for the construction of the pier proper has been completed.

Dredging channels in Quincy Bay leading to the Squantum and Wollaston Yacht Club Houses has been begun.

Preliminary railroad surveys for a location of a belt line are in progress.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Argentine Battleship "Rivadavia."
U. S. Torpedo Boat Destroyer "Henley."
U. S. Torpedo Boat Destroyer "Duncan."
U. S. Submarines K-1, K-2, K-5, and K-6.
U. S. Battleship "Nevada."

U. S. Submarine Tender "Niagara."
Molasses Steamer "Nelson" for the Cuba Distilling Co.
Sulphur Steamer "Frieda" for the Union Sulphur Co.
Oil Steamer "Richmond" for the Standard Oil Co.

New England Cement Gun Company.—This company has the following work in progress in this vicinity:—*Boston Elevated Railway.—Power House.*—Panel wall 10′ high and about quarter of a mile long built wholly by the Cement Gun. Work now in progress and should be completed by October 20th. Take a "City Point" car to O Street, South Boston, and go north two blocks to the power house.

Apartment House, Glenville Avenue, Allston.—Work nearly completed. This is an apartment house built of hollow tile coated with "Gunite" by means of the Cement Gun. Take Newton Boulevard car via Commonwealth Avenue and get off at Glenville Avenue. The apartment house is only a minute's walk from the car.

American Sugar Refining Co., Granite Street, South Boston.—Coal pocket 120′ high of concrete covered with "Gunite" over the lower portion; the upper section built wholly of steel framing with "Gunite" reinforcement as the curtain walls. The scaffolding is now being erected. Actual placing of "Gunite" will begin about October 15th.

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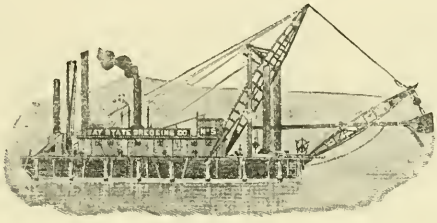

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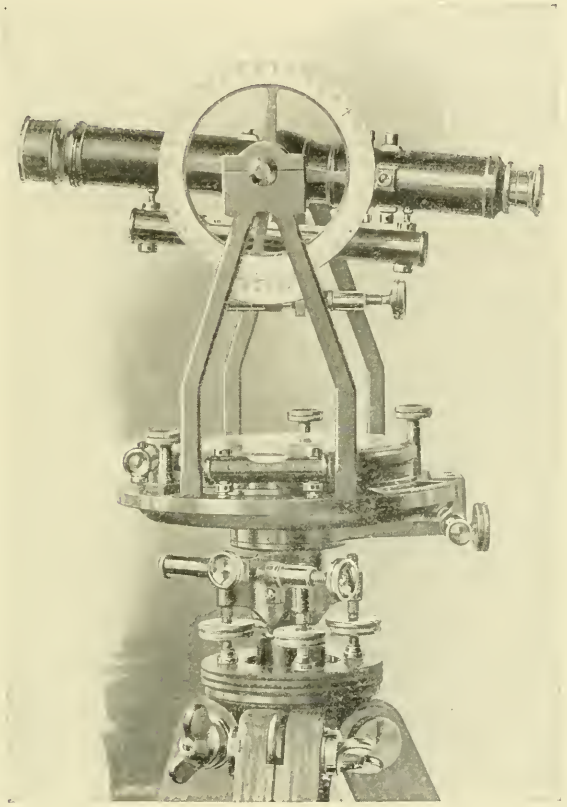

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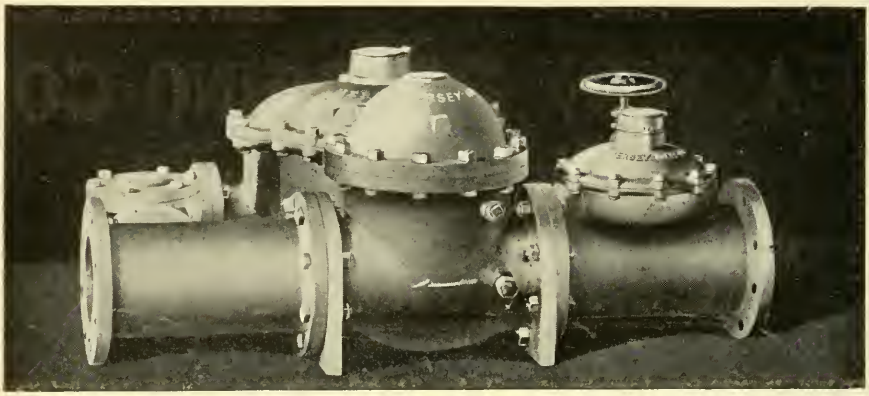

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BOSTON SOCIETY OF CIVIL ENGINEERS.

ORGANIZED JULY 3, 1848

MONTHLY BULLETIN.

NEW SERIES. NOVEMBER, 1912 No 66

ADJOURNED MEETING

At the regular meeting of the Society held Oct. 16, 1912, it was voted to adjourn to the third Wednesday in November at 7.30 o'clock. Pursuant to that vote an adjourned meeting of the Society will be held in Chipman Hall, Tremont Temple, on Wednesday evening, November 20, 1912, at 7.30 o'clock.

The matter under discussion at the time of adjournment was the following vote which had been passed at the September meeting of the Society: —

"Voted: — That a sum not exceeding $2,000 be appropriated from the permanent fund of the Society to be expended under the direction of the Board of Government for furnishing and fitting up the Society's rooms."

REGULAR MEETING

At the close of the adjourned meeting the regular November meeting of the Society will be held.

Business of the Meeting—Consideration of the revised report of the Committee on Code of Ethics, which is printed in the Bulletin.

Mr. Frank W. Hodgdon will give a talk entitled "Some Incidents of Survey of Mountains Near the Boundary between Costa Rica and Panama." The talk will be illustrated by lantern slides.

S. E. TINKHAM, *Secretary.*

SPECIAL MEETING OF THE SANITARY SECTION, NOVEMBER 27, 1912

The Sanitary Section will hold the first meeting of the season on Wednesday evening, November 27, 1912, at the Society rooms in Tremont Temple. There will be no dinner preceding the meeting. The addition to the Society's quarters makes it possible to hold the meeting in Tremont Temple instead of at the City Club.

A paper on "The Sanitary Work of the Sanitary District of Chicago, with Particular Reference to the Work of the Testing Station," will be presented by Mr. Langdon Pearse, Division Engineer of the Sanitary District of Chicago. The published report of this work contains but few details, and on that account Mr. Pearse's paper will be of special interest. The paper will be illustrated by lantern slides.

All members and friends who are interested in this subject are invited to be present. The meeting will be called to order at 7.45 o'clock. Kindly note the changes in time and place of meeting.

DECEMBER MEETING OF THE SANITARY SECTION

The regular December meeting of the Sanitary Section of the Boston Society of Civil Engineers will be held Wednesday evening, December 4, 1912, at the Boston City Club. Dinner will be served at the Club at 6 o'clock, to be followed by the meeting at 7.30 o'clock. The cost of the dinner will be $1.25 per plate as in previous seasons. These chances for social life among our local engineers are few and far between. Jot the date down on your memorandum, and make it a point to be present.

The Section is very fortunate in having secured as the speaker of the evening, Mr. Rudolph Hering, Consulting Engineer of New York, who will give a talk on "Refuse Disposal." The interest in this subject is growing each year, and in view of Mr. Hering's recognized ability in this line of work, it may be safely predicted that the meeting will be one of considerable value. Lantern slides will be used to illustrate the talk.

Special notices will be sent out a few days preceding the meeting.

REVISED REPORT OF COMMITTEE ON CODE OF ETHICS

The code is intended to establish certain general principles and rules of action for the members of the Society.

I.

Engineers should encourage sound engineering learning and training in the scientific schools and in actual work.

II.

The success of engineers depends upon their moral character, scientific attainments, industry, integrity and business talent. Aggressive competition which often prevails in ordinary commercial transactions cannot exist among engineers without diminishing their usefulness and lowering the dignity and standing of the profession.

III.

The first duty of engineers is to their clients or employers, who have a right to expect that the portion of their business entrusted to the engineer will receive careful investigation and intelligent treatment, and that any special information derived by the engineer during his employment, will be considered confidential.

IV.

Engineers in their professional relations should be governed by strict rules of honor and courtesy. Their conduct toward each other should be such as to secure mutual confidence and good will.

(*a*) They should take no step with a view to divert to themselves the clients or work of other engineers.

(*b*) If a client should desire to transfer his work to another engineer, it is his privilege to do so, but the engineer in charge should be given notice, with the reason for the same, of such change by the client, and the engineer to whom it is transferred should, before accepting the work, communicate with the engineer in charge, in order that there may be no bad feeling caused through misunderstanding.

(c) All communications should be made through a re-

sponsible head, unless another has been designated to act for him.

(*d*) Services of an assistant to an engineer should not be secured without first communicating with the principal to ascertain if such action will interfere with his work.

(*e*) An asssitant should not accept employment with another engineer without first consulting his superior.

(*f*) A superior should not stand in the way of advancement of a subordinate.

(*g*) The criticism of another's work should be broad and generous. The success of one member brings credit to the profession, and the failure of one, discredit to the whole.

(*h*) The attitude of superiors to subordinates should be that of helpfulness and encouragement.

The attitude of subordinates to superiors should be one of loyalty, free from captious criticism.

The treatment of each by the other should be open and frank.

(*i*) The engineer should be willing to assume his proper share of public work and render such assistance as is possible for the general good of the community.

V.

Consultations should be encouraged in cases of doubt or unusual responsibility. The aim should be to give the client the advantage of collective skill. Discussions should be confidential. Consulting engineers should not say or do anything to impair the confidence in the regular engineer, unless it is apparent that he is wholly incompetent.

VI.

With the understanding and consent of their clients, engineers may beforehand place any value on their services deemed proper.

Fees may be made upon a per diem, monthly or yearly basis, or as a fixed sum or upon a percentage basis. In addition a retainer may be charged.

It is desirable that a definite agreement be made in advance as to the fee and the extent of the work to be done, so as to avoid subsequent misunderstanding. The period of time should

be designated during which the agreed fees shall apply and beyond which an additional or modified charge may be made.

VII.

Engineers should promptly inform their clients of any business connections, interests or circumstances which might prevent them from giving an unprejudiced opinion.

They should not receive commissions or any remuneration other than their direct charges for services rendered their clients.

In advertising, they should avoid, as far as possible, commercial methods.

VIII.

Engineers acting as experts in legal and other cases, in making reports and testifying, should not depart from the true statement of results based on sound engineering principles. To base reports or testimony upon theories not so founded and thereby produce erroneous results, is highly unprofessional and brings discredit on the profession, and upon the engineers guilty of such conduct.

IX.

The attitude of engineers toward contractors should be one of helpful co-operation and tactfulness, combined with just and firm criticism. They should assume a judicial attitude toward both parties to the contract.

X.

As the lines of distinction between the various branches of engineering are becoming less marked, an intimate relation between them should be encouraged.

Charles T. Main,
Frederic P. Stearns,
George B. Francis,
Charles R. Gow,
Charles B. Breed,
Committee.

APPLICATIONS FOR MEMBERSHIP

[November 13, 1912.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Ellis, Leslie Burton, Melrose, Mass. (Age 26, b. Melrose, Mass.) Graduated from Mass. Inst. of Technology, 1908. From 1908 to 1912 with the Metropolitan Water Works, as civil engineer on construction of large pipe lines, tunnels, etc. At present, resident engineer for Lockwood, Greene & Co., on foundation work at Amherst, Nova Scotia. Refers to Dexter Brackett, J. N. Ferguson, Clifford Foss, W. E. Foss, and L. L. Street.

Humphrey, John Stacey, Swampscott, Mass. (Age 36, b. Marblehead, Mass.) Graduate of Lynn Classical High School in 1894. Worked as rodman, transitman and engineer from Jan., 1895, to Feb., 1902, for the City of Boston, under Board of Survey Act, Street Laying-Out Dept.; with Metropolitan Water Board until Aug., 1902; with Boston Schoolhouse Commission as transitman, engineer, and superintendent of construction until June, 1906. At present with William Crane, Builder, as engineer and estimator. Refers to Clifford Foss, C. B. Humphrey, H. C. Mildram and F. O. Whitney.

Rourke, Joseph Aloysius, Boston, Mass. (Age 45, b. Worcester, Mass.) B. S. degree, Worcester Polytechnic Institute, class of 1887. From 1888-9 with Worcester Steel Works as mechanical engineer; 1890

to 1900 (about 8 yrs.) draughtsman and designer with Atlantic Works, East Boston, Edison Electric Ill. Co., of Boston, and General Electric Co., of Lynn and Schenectady; 1895-7 with Boston Transit Commission (1½ yrs.); 1900 and 1909 (1½ yrs.) Boston Elevated R. R.; from 1901 to 1912 (except part of 1909), draughtsman, asst. engineer, and mechanical engineer in the Street and Public Works Dept., City of Boston. At present mechanical engineer, High Pressure Fire Service, Public Works Dept., City of Boston. Refers to H. A. Carson, G. C. Emerson, F. H. Fay, G. A. Kimball, F. A. McInnes, L. K. Rourke, and J. R. Worcester.

Tuttle, Arthur Stillman, Boston, Mass. (Age 48, b. Dorchester, Mass.) Graduated from Dorchester High School, 1882. From 1882-1887, rodman, transitman, and assistant engineer under Mr. S. L. Minot, mainly on surveys, trackwork, and masonry construction, Boston & Providence R. R.; 1887-1890, assistant engineer for B. & P. R. R. and Old Colony R. R., with field charge of double tracking West Roxbury Branch, reconstruction of bridges, location, and construction of Wrentham Branch; 1890-1893, assistant engineer and chief engineer on location and construction of the Plymouth & Middleboro, R. R.; 1893-1899, principal assistant engineer O. C. R. R. and N. Y., N. H. & H. R. R., on the elimination of grade crossings on Providence Division in Boston, Hyde Park and Dedham; 1899-1912, assistant engineer of construction in charge of elimination of grade crossings at Middleboro, Fall River, Walpole and Clinton, Mass., the construction of four track drawbridge at Neponset, two track drawbridge at Boston Freight Terminal, double tracking from Walpole to So. Framingham, Mass., and preparation of plans for elimination of grade crossings at Taunton, Leominster, and Southbridge on the N. Y., N. H. & H. R. R., and at North Adams, Troy, Winchester, Waltham, Waverly, and Weston on the B. & M. R. R. At present division engineer in charge of construction on the easterly portion of the N. Y., N. H. R. R. Refers to P. D. Borden, H. C. Mildram, J. W. Rollins, S. E. Tinkham, and B. T. Wheeler.

Wilson, Albert Olof, Cambridge, Mass. (Age 25, b. Cambridge, Mass.) Graduate of Mass. Inst. of Technology, 1911. Equivalent of three years' work with building contractor, ending Oct., 1910. Engaged in structural steel work two years, as shop foreman, and later as chief draughtsman. At present chief draughtsman with Guy L. Leavitt Co., of Cambridge and Boston. Refers to C. H. Dutton, F. L. Murray, E. A. Norwood, and Gilbert Small.

Wones, Bernard Blyth, Montreal, P. Q., Canada. (Age 27, b. Surrey, England.) Educated at Whitgift Middle School, Croydon, Surrey, England; Polytechnic Institute and Birkbeck College, London, England. Appointed assistant to Alexander Payne, District Surveyor of the London County Council (1901-1906), and to Henry F. Bryant, Engineer, Brook-

line, Mass. (1906-1911). Engaged as engineer by L. E. Schlemm, Landscape Architect, Montreal (1911-1912). At present engaged as computor by Malcolm D. Barclay, Quebec Land Surveyor, Montreal, P. Q., Canada. Refers to H. F. Bryant, Thomas Iverson, David Sutton, H. A. Varney, and R. H. Whiting.

MINUTES OF MEETINGS

OCTOBER MEETING OF THE SOCIETY

Boston, Mass., Oct. 16, 1912.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.45 o'clock, President James W. Rollins in the chair.

The reading of the record of the last meeting was dispensed with and it was approved as printed in the October Bulletin.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named: —

Members, Messrs. John A. Guiney, Herbert Daniel Hurley, Arndt Thomas Iverson, Austin Louis Maddox, Percival Hildreth Mosher, Arthur Edwin O'Neil, Anthony Winfred Peters, Lawrence Minot Pitman, Charles Franklin Powers, George Hermon Stearns, George Hilton Thorpe.

Juniors, Messrs. Benjamin Boas, William Haskins Coburn, and Beardsley Lawrence.

The President stated that the business before the meeting was to act on the following vote which was passed at the last meeting of the Society,

"Voted: — That a sum not exceeding $2,000 be appropriated from the permanent fund of the Society to be expended under the direction of the Board of Government for furnishing and fitting up the Society's rooms."

Mr. Howe spoke in opposition to any appropriation from the permanent fund and suggested that the money be loaned from that fund to be paid back from the current fund later. He read a statement giving the history of the fund and showing that this method had been used on former occasions.

At the conclusion of Mr. Howe's statement, on motion of Mr. Hodgdon it was voted that this meeting adjourn to the third Wednesday in November at 7.30 o'clock P. M.

The meeting was then turned over to the American Society of Mechanical Engineers, Prof. E. F. Miller in the chair.

The principal feature of the meeting was a description of the water power development of the Mississippi River Power Company at Keokuk, Iowa, by Mr. Hugh L. Cooper, Chief Engineer of that Company. By way of introduction Mr. Cooper showed a few slides illustrating some very ancient and primitive applications of water power, also some notable features of other undertakings in which he had been interested, followed by a large number of slides showing the immense undertaking at Keokuk and its several parts in various stages of progress; all of which was described and commented on in a most entertaining and instructive manner.

Next Mr. D. L. Galusha, Engineer with Stone & Webster Engineering Corporation, presented a brief illustrated description of the main electrical features of the plant, including the generators, switching, and other power house equipment, and transmission line construction.

The many interesting features of this work were further brought out by the questioning and general discussion which followed, and which was participated in by several members of the various Societies.

The attendance was about 425.

S. E. Tinkham, *Secretary.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

MEN AVAILABLE

130. Age 29. Has had seven years' experience in general surveying work, also four months of railroad work on maintenance of ways and relocation work with B. & M. R. R. Desires position as transitman or rodman.

131. Age 23. Surveying course at International Correspondence School. Has had about three years' experience as rodman and transitman. Desires position as transitman. Salary desired, $15.00 per week.

132. Age 31. Educated in the public schools of Lowell, Mass. Took a course in mathematics at the Boston Y. M. C. A., and the Cambridge Evening High School. Has had about fourteen years' experience as rodman, transitman, draftsman and chief of party, in private office on street railway, subway and sewer work. Desires position as transitman, draughtsman, or inspector. Salary desired, $80.00 per month.

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Geodetic Operations, 1909-1912. O. H. Tittman.

State Reports

New York. Report of Advisory Board on Barge Canal, 1910.

New York. Annual Reports of Public Service Commission for First District, 1910 and 1911.

New York. Annual Report of State Engineer and Surveyor for 1911, 2 vols.

City and Town Reports

Cambridge, Mass. Annual Report of City Engineer for 1911.

Cambridge, Mass. Annual Report of Water Board for 1911.

Chicago, Ill. Joint Report on System of Subways, 1912.

Detroit, Mich. Annual Report of Park Dept. for 1912.

Melrose, Mass. Annual Report of Public Works Dept. for 1911.

Middletown, Conn. Annual Report of Water Commissioners for 1911.

San Francisco, Cal. The Hetch Hetchy Water Supply. John R. Freeman. Gift of Mr. Freeman.

Toronto, Canada. Annual Report of City Engineer for 1911.

Woburn, Mass. Annual Report of Water Dept. for 1911.

Miscellaneous

Military Reconnaissance in Alaska. Frederick Schwatka. Gift of E. R. Olin.

Interoceanic Communication via American Isthmus. Lieut. John T. Sullivan. Gift of E. R. Olin.

Reconnaissance in Alaska. Henry T. Allen. Gift of E. R. Olin.

The Quebec Bridge Inquiry: Report of Royal Commission. 3 vols. with plans.

National Board of Fire Underwriters. Suggested Laws and Ordinances. Suggestions for Organization of Private Fire Brigades.

Members will note that a permanent assistant has been placed in charge of the library, also that progress is being made towards transferring books to the new shelves.

FREDERIC I. WINSLOW, *Librarian.*

LIST OF MEMBERS

ADDITIONS

BOAS, BENJAMIN .....73 Hancock St., Dorchester, Mass.
COBURN, WILLIAM H. .....225 Newbury St., Boston, Mass.
GUINEY, JOHN A. .....79 East Brookline St., Boston, Mass.
HURLEY, HERBERT D. .....94 Forest St., Melrose, Mass.
IVERSON, THOMAS ....43 St. Francois Xavier St., Montreal, P. Q., Canada.
MADDOX, AUSTIN L.....391 Walpole St., Norwood, Mass.
O'NEILL, ARTHUR E. .....147 Summer St., Watertown, Mass.
PETERS, ANTHONY W. .....Moundsville, West Virginia
PITMAN, LAWRENCE M. ...23 Crescent Hill Ave., Arlington Heights, Mass.
THORPE, GEORGE H. .....17 Nicollet St., Lowell, Mass.

CHANGES OF ADDRESS

Bigelow, William W. .....624 State St., Springfield, Mass.
Callahan, John F. Jr., ...42 West 64th St., New York, N. Y.
Campbell, Charles A. .....178 Walnut Ave., Roxbury, Mass.
Carter, Harold L., 219 Commonwealth Ave., Chestnut Hill, Newton, Mass.
Crocker, Henry L. .....37 Astor St., Boston
DeWolf, John O. .....19 Milk St., Boston, Mass.
Drake, Henry P. .....Bank for Savings Bldg., Pittsburgh, Pa.
Ewing, William C. .....985 Washington St., Boston, Mass.
Farnum, Loring N. .....1 West 81st St., New York, N. Y.
Hodges, Gilbert .....230 South Main St., Franklin, N. H.
Hunter, Harry G. .....619 New Birks Bldg., Montreal, P. Q., Canada
Jaques, William H. ..Hotel Puritan, Commonwealth Ave., Boston, Mass.
Sawtelle, Harry E. .....290 Bowdoin St., Winthrop, Mass.
Servis, George O. W. .....504 Lebanon St., Melrose, Mass.
Thompson, Sanford E. .....141 Milk St., Boston, Mass.
Tucker, Francis C. ..... 4630 Kenmore Avenue, Chicago, Ill.
Tucker, Hermon F. .....432 Pioneer St., Seattle, Wash.

DEATHS

Barnard, Theodore O. .....October 23, 1912

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts. — SEWERAGE WORKS.— Work on Section 67, New Mystic Sewer, is in progress. Extension to screening machinery and building in progress at East Boston Pumping Station.

METROPOLITAN PARK COMMISSION.—Proposals have been received for work of building bridge over the Charles River between Cambridge and Boston at North Harvard and Boylston Streets, known as the "Anderson Bridge." The contract is not yet awarded, but it is expected that it soon will be and work of construction will begin immediately.

Boston Transit Commission.—The Boylston-street Subway is under contract from the beginning of the open incline at Kenmore Street and Commonwealth Avenue to Boylston Street at the Public Library.

Section 1, which extends from Kenmore Street to Massachusetts Avenue, is about 75 per cent. completed. The Commonwealth-avenue Parkway is being resurfaced and the curbstone and macadam roadways in Commonwealth Avenue and Charlesgate West are being replaced.

Section 2. Construction work on that part of Section 2 under the yard of the Public Works Department and the buildings of the Police and Fire Departments is progressing rapidly. The sewer crossing at Hereford Street is completed.

Section 3. The sidewalls are nearly completed and about 70 per cent. of the subway roof is completed and backfilled. The excavation and construction of the concrete invert is under way.

Work on the Dorchester Tunnel is in progress under Winter Street, Section A. The depth of the bottom of the tunnel is about 40 feet below the street surface, on account of the line having to go under both the Tremont-street Subway and the

Washington-street Tunnel. The Coughlan & Sheils Company is the contractor for the construction of the section.

City of Boston.—Public Works Department, Highway Division, Paving Service.—Work is now in progress on the following streets: — Chandler St., Berkeley St. to Castle Square, wood block pavement; Tetlow St., Worthington St. to Tremont Entrance, macadam; Winthrop St., Blue Hill Ave. to Brook Ave., art stone sidewalks; Longwood Ave., Huntington Ave. to Parker St., granite block; Inwood St., Olney to Norton Sts., macadam; Brackett St., Washington to Faneuil Sts., art stone sidewalks; Carlos St., Lauriat Ave. to Callender St., art stone sidewalks; Woodford St., Magnolia St. to Magnolia St., macadam; B St., Fargo to Congress Sts., granite block; B St., W. First St. to Cypher St., granite block; Washington St., Talbot Ave. to Blue Hill Ave., wood block; Washington St., Talbot Ave. to Welles Ave., art stone sidewalks; Montclair Ave., Centre to Fletcher Sts., macadam; Saratoga St., 200 east to 200 west of Moore St., wood block; Oakland St., Harvard St. to Richmond Rd., grading; Clinton St., Commercial St. to Atlantic Ave., granite block; Providence St., at Columbus Ave., macadam; Holiday St., Bowdoin to Topliff Sts., macadam; Western Ave., Market to Waverly Sts., granite blocks; Sachem St., Hillside to Parker Hill Ave., macadam; Maitland St., Beacon St. to B. and A. R. R., brick block; Homes Ave., Topliff to Draper Sts., macadam; Dalrymple St., Egleston to Boylston Sts., macadam; Knoll St., Walter to Selwyn Sts., macadam; Hendry St., Coleman to Clarkson Sts., macadam; Walnut St., Neponset Ave. to Wood St., art stone sidewalks; Vaughn Ave., Geneva Ave. to Devon St., macadam.

Public Works Department, Sewer and Water Division, Sewer Service.—Stony Brook, Section 8, in private land between Hyde Park Avenue and railroad, West Roxbury, 17′ x 13′-9″ conduit. Carries the West Roxbury Low Level sewer, size 2′-8″ x 4′-0″ on one of its haunches; crosses underneath the N. Y., N. H. & H. R. R. with a 44′ cut and quicksand.

Union Park between Albany and Washington Streets, South End. Removing wooden sewer and replacing with two-story

reinforced concrete structure. Lower sewer to connect with pumping station; upper sewer to flow by gravity.

Bridge and Ferry Division.—*Chelsea Bridge North.*—For the next few weeks, the work in progress will be depositing concrete and laying the granite masonry for the centre pier for the draw span, raising the approaches on both sides of the draw and building the timber draw fender pier.

Harvard Bridge.—The work of repaving the roadways of the fixed spans of this bridge is now in progress. New wood blocks are being laid for the roadways and brick blocks along the street car rails.

L-Street Bridge, South Boston.—The repairing and strengthening of this bridge for heavy street car traffic is now in progress.

Directors of the Port of Boston.—Pier No. 6 (Fish Pier), South Boston.—Work continues filling Pier No. 6, South Boston, for the Boston Fish Market Corporation. This Corporation has recently let a contract for the erection of buildings on this pier.

Commonwealth Pier.—A contract has been let to G. H. Breymann & Bros. for dredging berths on either side of Commonwealth Pier, South Boston, to a depth of 40 ft. at mean low water and the approaches to the pier to a depth of 35 ft. at mean low water. Work has been begun under this contract.

Dredging Channels at Quincy leading to the Squantum and Wollaston Yacht Club Houses is being continued.

A contract for *dredging opposite the Grand Junction Wharves* at East Boston to a depth of 27 ft. at mean low water, which was let to George H. Breymann & Bros., has been completed.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Argentine Battleship Rivadavia for the Argentine Republic.
U. S. Torpedo Boat Destroyer Henley.
U. S. Submarine K-1.
U. S. Submarine K-2.
U. S. Torpedo Boat Destroyer Duncan.
U. S. Submarine K-5.

U. S. Submarine K-6.
U. S. Battleship Nevada.
U. S. Submarine Tender Niagara.
Molasses Steamer Nelson for the Cuba Distilling Co.
Sulphur Steamer Frieda for the Union Sulphur Co.
Oil Steamer Richmond for the Standard Oil Co.

East Cambridge, Mass.—The Aberthaw Construction Company are just starting a four-story reinforced concrete warehouse for the Carter Ink Co.

Peabody, Mass.—The Aberthaw Construction Company has the eight-story warehouse for the A. C. Lawrence Leather Co. well along. It is nearly ready for the roof.

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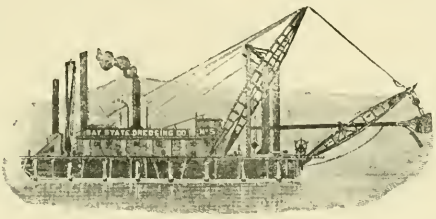

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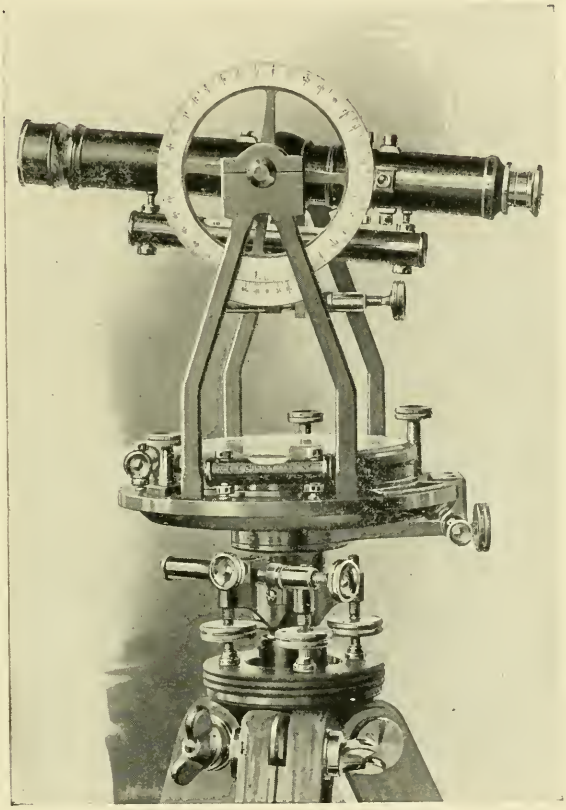

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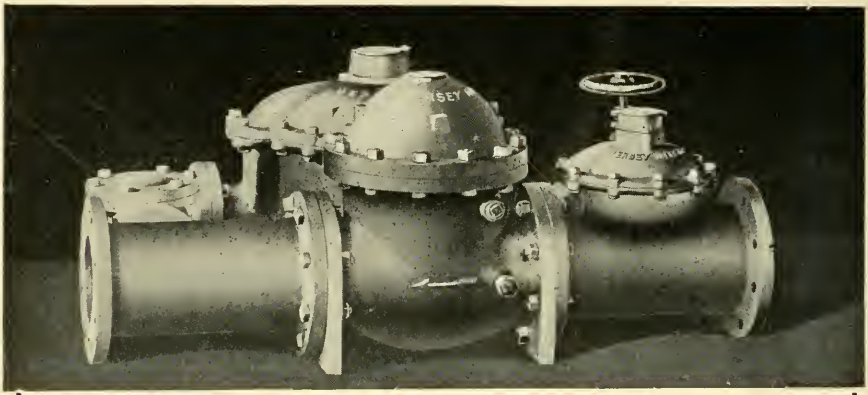

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MONTHLY BULLETIN.

NEW SERIES. DECEMBER, 1912 No 67

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, December 18, 1912, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON.

Business of the Meeting—Consideration of the revised report of the Committee on Code of Ethics, which was printed in the November Bulletin.

Mr. George A. Harwood, Chief Engineer, Electric Zone Improvement, N. Y. C. & H. R. R. Co., will read a paper entitled "The Construction of the New Grand Central Terminal for the New York Central & Hudson River R. R. Co., New York City." The paper will be illustrated by lantern slides.

A most cordial invitation is extended to LADIES to be present at this meeting.

S. E. TINKHAM, *Secretary.*

JANUARY MEETING OF THE SANITARY SECTION

A special meeting of the Sanitary Section of the Boston Society of Civil Engineers will be held Wednesday evening, January 8, 1913, at 7.45 o'clock, in Social Hall, Tremont Temple. This hall is on the seventh floor adjoining the new reading room of the Society, and may be entered by a door leading from it. Members should enter the Society rooms by the door numbered 715 in the corridor near the elevators and not by the old door in the further corridor.

The subject for discussion will be "Ventilation." Papers will be read by Prof. R. C. Carpenter, Professor of Experimental Engineering at Cornell University, and Mr. D. D. Kimball, Heating and Ventilation Engineer of the firm of R. D. Kimball & Co. of New York City. Dr. Milton J. Rosenau, Professor of Preventive Medicine and Hygiene at the Harvard Medical School, has also kindly consented to be present and to take part in the discussion.

All interested in this subject are cordially invited to be present.

APPLICATIONS FOR MEMBERSHIP

[December 11, 1912.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Nash, Philip Curtis, Allston, Mass. (Age 22, b. Hingham, Mass.) Graduate of Mechanic Arts High School, 1906; Harvard College, 1911; School of Applied Science of Harvard University, Degree M. C. E., 1912. From June 1, 1912, to present date with Boston Transit Commission on Dorchester Tunnel, as assistant to the Engineer in charge. Refers to C. L. Brown, Richard Brunel, G. D. Emerson, H. J. Hughes, L. J. Johnson, and G. F. Swain.

Porter, Arthur P., Sherborn, Mass. (Age 31, b. Chicopee, Mass.) Graduate of Mass. Inst. of Technology, 1904, Course I. During summer vacation of senior year employed by U. S. Geol. Survey on stream gaging work. From 1904 to 1908 in the West as draftsman on various railroad and other surveys, including the Spokane & Inland Electric Road, the railroad on the North Bank of the Columbia River, the Harriman line into Seattle, and seven months in Alaska on a railroad survey for a copper mining company; 1909 with Ontario and Western in New York State, seven months of which time was draftsman; 1910 to March, 1911, inclusive, in Wyoming on an Indian reservation making plans for irrigation ditches; April, 1911, to August, 1911, inclusive, in Boston plotting soundings of the harbor; and from August, 1911, to present time draftsman in the office of the Engineer of Structures, Boston & Albany R. R. Refers to C. J. Bonnemort, A. M. Deane, R. K. Hale, G. F. Swain, and F. E. Tibbetts.

Wertheim, Leslie Jack, Berlin, N. H. (Age 25, b. Lyndon, Vt.) From 1904-5 surveying and mapping with International Correspondence School; 1907-10 studied Civil Engineering at University of Maine. Summers of 1903, 1904, 1905, 1906, and 1907, rodman, tracer, transitman, and assistant engineer in City Engineer's Office, Berlin, N. H.; 1910, Engineer in charge of location and construction of railroad for the Berlin Mills Co., Berlin, N. H.; March, 1911, to present time City Engineer of Berlin, N. H. Refers to H. S. Boardman, W. A. Cobb, W. H. G. Mann, G. A. Sampson, and J. W. Storrs.

MINUTES OF MEETINGS

MEETINGS OF THE SOCIETY

Boston, Mass., November 20, 1912.—In pursuance of a vote of the Society passed at its regular meeting, October 16, 1912, an adjournment of that meeting was held this evening in Chipman Hall, Tremont Temple, and was called to order at 7.30 o'clock, by the President, Mr. James W. Rollins.

The President stated that the matter under discussion at the time of adjournment was the following vote which had been passed at the September meeting of the Society:—

"*Voted:*—That a sum not exceeding $2,000 be appropriated from the permanent fund of the Society to be expended under the direction of the Board of Government for furnishing and fitting up the Society's rooms."

Mr. FitzGerald moved, and it was duly seconded, that action on the vote be indefinitely postponed.

After a prolonged discussion, during latter part of which Vice-President Fay occupied the chair, the motion to indefinitely postpone was lost, 8 in favor and 35 against.

The vote passed at the September meeting, namely:—That a sum not exceeding $2,000 be appropriated from the permanent fund of the Society to be expended under the direction of the Board of Government for furnishing and fitting up the Society's rooms, was then passed for the second time, in accordance with the Constitution of the Society, 58 voting in favor and 8 against.

At 8.45 o'clock the meeting adjourned.

S. E. Tinkham, *Secretary.*

Boston, Mass., November 20, 1912.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, and was called to order at 8.45 o'clock, President James W. Rollins in the chair; 98 members and visitors present.

The reading of the record of the last meeting was postponed until the next meeting.

The Secretary reported for the Board of Government that it had elected the follwing to membership in the grades named:—

As Members, Messrs. Clarence M. Brooks, Albert Joseph Holmes, John Henry McCormick, Jr., Edward Frederick Olson, James Jarvis Preble, Leonard Ernest Schlemm, and Edward Richard Smith. As a Junior, Mr. Philip James Doherty.

It was voted to postpone until the next meeting the consideration of the report of the Committee on Code of Ethics.

Past President, Frank W. Hodgdon was then presented and gave a very interesting talk, illustrated by lantern slides, entitled "Some Incidents of Survey of Mountains Near the Boundary Between Costa Rica and Panama."

S. E. Tinkham, *Secretary.*

MEETINGS OF THE SANITARY SECTION

Boston, Mass., November 27, 1912.—A special meeting of the Sanitary Section of the Boston Society of Civil Engineers was held this evening at the Society rooms in Tremont Temple. Chairman George C. Whipple called the meeting to order at 8 o'clock, and introduced the speaker of the evening, Mr. Langdon Pearse, Division Engineer of the Sanitary District of Chicago. Mr. Pearse gave a very interesting and valuable description of "The Sanitary Work of the Sanitary District of Chicago," paying particular attention to the experiments made and the results obtained by the sewage testing station. Lantern slides were used to illustrate the talk. Many diagrams were shown to illustrate the changes in chemical constituents in the water of the Drainage Canal and the degree of purification effected by the various sewage treatment methods.

The subject was discussed by Messrs. Geo. C. Whipple, Charles Saville, H. P. Eddy and others. In view of the fact that it was the night before Thanksgiving Day, the attendance, 47, must be considered a very good showing. The meeting adjourned at 9.45 o'clock P. M.

Frank A. Marston, *Clerk.*

Boston, Mass., December 4, 1912.—The regular December meeting of the Sanitary Section of the Boston Society of Civil Engineers was held this evening at the Boston City Club. Dinner was served shortly after 6 o'clock to 17 members and guests. At 7.30 o'clock the meeting was called to order by Chairman George C. Whipple. As no objections were offered, the minutes of the two last meetings were declared approved as printed in the Bulletin. The Chairman announced the death of Mr. George A. Kimball and spoke briefly of the personal loss felt by the members as well as the loss to the Society. Mr. Kimball was always deeply interested in the work of the Section and was a regular attendant of the meetings.

The speaker of the evening was Dr. Rudolph Hering, Consulting Sanitary Engineer of the firm of Hering and Gregory of New York City. Dr. Hering spoke on "Refuse Disposal," using lantern slides to illustrate his talk.

Dr. Hering stated that in considering what method to use in the disposal of a city's refuse, the cost of collection was a very important feature, and many times it was the controlling feature in deciding between the reduction process and incineration. The refuse should be treated first, so as not to spread disease, second, so as not to produce a nuisance and third, in the most economical manner.

The discussion at the close of the talk was entered into by a number of the members. A vote of thanks was extended to Dr. Hering for his courtesy in bringing so many interesting and valuable facts before the Section. The meeting adjourned at 9.45 o'clock. The attendance was 47.

FRANK A. MARSTON, *Clerk.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

MEN AVAILABLE

133. Age 24. Graduate of Mass. Inst. of Technology, 1911. Has had two years' experience as transitman, rodman, and inspector on roads, concrete bridges and concrete sea-walls. Desires position as transitman or engineer. Salary desired, $100 per month without expenses.

134. Age 26. Graduate of Dartmouth College, 1910, and Thayer School of Civil Engineering, 1911. Two field seasons as assistant on general city work and construction of storage

reservoir; one field season as Junior Topographer; six months as computer and draftsman; and five months as instrumentman. Salary desired, $100 per month.

135. Age 22. Some experience running tape and rod. Desires position in field work. Salary desired, $10 per week.

136. Age 23. Graduate of Lawrence High School. Has had one and one-half years' experience as rod and chainman, running property lines and laying out townsites; also city and field work, including topography. Salary desired, $60 and expenses.

LIST OF MEMBERS

ADDITIONS

BROOKS, CLARENCE M.....P. O. Box 260, Keene, N. H.
LAWRENCE, BEARDSLEY.. 12 Westmoreland St., Dorchester Centre, Mass.
MCCORMICK, JOHN H., JR.....4 Pine St., Albany, N. Y.
MOSHER, PERCIVAL H.....11 Safford St., Hyde Park, Mass.
POWERS, CHARLES F.....58 Templeton St., Dorchester Centre, Mass.
PREBLE, J. JARVIS.....90 Church St., Waltham, Mass.
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SMITH, SIDNEY.....17 Battery Place, Rm. 1113, New York, N. Y.
WARREN, GEORGE M.....910 Travelers' Bldg., Richmond, Va.

DEATHS

ALLEN, CHARLES A.....December 9, 1912.

GEORGE ALBERT KIMBALL
Member, Boston Society Civil Engineers
President, March 19, 1902, to March 18, 1903
Born May 14, 1850
Joined the Society, April 28, 1875
Died December 3, 1912

LIBRARY NOTES

Recent Additions to the Library

U. S. Government Reports

Gasoline and Denatured Alcohol as Fuels in Internal-Combustion Engines.

Determination of Water in Petroleum.

Official Gazette of Patent Office, 1912.

List of Patentees, 1912.

City and Town Reports

Cambridge, Mass. Special Report on Water Supply, 1912.

New Orleans, La. Semi-Annual Report of Sewerage and Water Board, 1912.

New York, N. Y. Preliminary Report on Disposal of Sewage.

Miscellaneous

Practical Physics. Glazebrook and Shaw.

American Society of Civil Engineers. Index to Transactions, Vols. I. to LXXIV.

Engineers' Society of Western Pennsylvania. Proceedings for 1910-11.

National Fire Protection Association. Automatic Control of Fire. Fitzhugh Taylor. Holiday Fire Bulletin.

Members returning books to the library will kindly leave them with the assistant librarian, whenever possible.

Frederic I. Winslow, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts. —Sewerage Works.—Work on Section 67, New Mystic Sewer, is in progress. Extension to screening machinery and building in progress at East Boston Pumping Station.

Metropolitan Park Commission.—The contract for construction of the Anderson Bridge across Charles River at North Harvard and Boylston Streets, Boston and Cambridge, has been awarded to Holbrook, Cabot & Rollins, and work has been begun.

Boston Transit Commission.—The portion of the Boylston-street Subway extending from Kenmore Street near the junction of Massachusetts Avenue and Beacon Street to near the Public Library building on Boylston Street is nearly completed excepting the station near Massachusetts Avenue and a small part west of Hereford Street, near the Police Station. The Hugh Nawn Contracting Company is the contractor.

Section A of the Dorchester Tunnel, in Winter Street, is about three-quarters done. The Coughlan & Sheils Company is the contractor.

Work on the extension of the East Boston Tunnel has been started in Scollay Square. Isaac Blair & Co. are the contractors for this portion of the work.

City of Boston. — Public Works Department, Highway Division, Paving Service.—Work is now in progress on the following streets:—Edinboro St., Beach to Essex Sts., asphalt; Metropolitan Ave., Washington to Kittridge Sts., art stone walks; Hadwin Way, Hyde Park Ave. to Hammatt Rd., tar macadam; Chandler St., Berkeley St. to Castle Sq., wood block; Longwood Ave., Huntington Ave. to Parker St., granite block; Brackett St., Washington to Faneuil Sts., art stone walks; Woodford St., Magnolia to Magnolia St., macadam; B. St., Fargo to Congress Sts., granite block; Sachem St., Hillside St. to Parker Hill Ave., macadam; Maitland St., Beacon St. to

B. & A. R. R., brick block; South St., Robert to Centre Sts., art stone walk; Washington St., Blue Hill Ave. to Talbot Ave., wood block.

Public Works Department, Sewer and Water Division, Sewer Service.—Stony Brook conduit across N. Y., N. H. & H. R. R., Forest Hills, Mass. Size 17′ x 13′-9″; also a sewer on the south haunch 2′-8″ x 4′. Cut of excavation 44′ below rails; 4 track road; 8′ to 10′ of quicksand. Carnegie 3/4″ interlocking steel sheeting used and driven by an Arnott steam hammer and driven 6′ below grade.

Union Park from Albany to Washington Streets, South End. Size 7′-4″ x 7′-4″ concrete horse shoe over 7′-4″ x 4′-2″. Upper sewer at gravity flow; lower sewer to be pumped.

Bridge and Ferry Division.—*Chelsea Bridge North.*—The masonry of the centre pier for the draw span has all been laid and work on both approaches and the draw fender pier is in progress. It is expected that the erection of the steel work of the draw span will be under way by the first of January.

Harvard Bridge.—The work of repaving the roadways of the fixed spans of this bridge is now in progress. New wood blocks are being laid for the roadways and brick blocks along the street car rails. On the portion of the Boston approach where the grade is about 2½ per cent, the Shuman Slip-not pavement is being laid.

L-Street Bridge, South Boston.—The repairing and strengthening of this bridge for heavy street car traffic is now in progress.

Public Boat Landings.—Contracts have been made for building landings for small boats at Northern Avenue Bridge and at Summer St. Bridge, and work is now in progress.

Directors of the Port of Boston. — Pier No. 6 (Fish Pier), South Boston.—About 95 per cent. of the work required for the pier proper has been completed. Placing the gravel surfacing and building a timber fender on the outside of the sea walls are being continued. Foundations for the buildings are being placed by the Boston Fish Market Corporation.

Commonwealth Pier No. 5.—Bids have been received re-

cently for the reconstruction and equipment of this pier to fit it as a steamship terminal. Temporary railroad tracks for construction purposes are now being laid the length of the pier. The dredging of the berths on either side of the pier to a depth of 40 feet at mean low water is being done under a separate contract.

Dredging Channels at Quincy leading to the Squantum and Wollaston Yacht Clubs is nearly completed.

Boston Elevated Railway Company.—Elevated and Subway Construction.—*Malden Extension.*—The first work to be done in connection with the Elevated extension to Everett and Malden consists of extensive alterations to the present Sullivan Square car house and yard and the construction of the Beacham Street Yard, so-called. This storage yard will be located between Arlington Avenue and the Mystic River bridge, and consists of an elevated structure carrying twelve parallel tracks. Two of these tracks will be used for sidings, two for the main line to Malden and eight for storing about 75 elevated cars. The structure supporting the eight storage tracks is so designed as to allow for inspection pits and a roof, in case there arises a demand for additional inspection shed space.

The foundations for this work are practically all in place and the contract for the steel work let to the Pennsylvania Steel Company for delivery in the early spring of 1913.

Mystic River Bridge.—This bridge is the second link in the Malden Extension. It consists of 12 spans of 3-track plate girder structure, supported by steel bents resting on masonry piers. The total length is about 840 feet. Unlike the balance of the Malden Extension, the Mystic River Bridge was designed by the contractors, the Holbrook, Cabot and Rollins Corp., the American Bridge Co. being the sub-contractor for all steelwork. There will be a draw span of the bascule type, giving a clear opening to shipping of 75 feet.

Dover Street Station.—The new side platform station at this point was opened to the public on December 9 and has already been declared a success. The new station is perhaps the best arranged on the entire system and will surely prove

ample for any future requirements in the way of traffic. One enters the station from any of the four Dover Street sidewalks, both for north bound and south bound trains. The ticket offices, toilets, etc., are located underneath the elevated tracks and directly over the intersection of Dover and Washington Streets. Here the passenger ascends a grand staircase to the upper level. There are two exits from each platform and four stairways to Washington Street sidewalks. Transfers are issued after having passed to the mid-level exit galleries before passing through the turnstiles. The platforms accommodate eight car trains.

New York, New Haven & Hartford Railroad.—COHASSET NARROWS BRIDGE, BUZZARDS BAY, MASS.—Framing ties; laying track.

Elimination of Grade Crossings at Clinton, Mass.—Placing concrete in abutment foundations.

East Cambridge, Mass.—Aberthaw Construction Co. is building a storage building for the Carter Ink Co., according to designs of Densmore & LeClear. On this work the wall columns of the building are kept inside the curtain walls. The floor cantilevers beyond the line of the columns and a continuous terra cotta wall is to be used. The design is not a common one and seems economical.

Brookline, Mass.—The Aberthaw Construction Company is building the foundation, walls and roof of an art gallery for Mr. Desmond Fitzgerald.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

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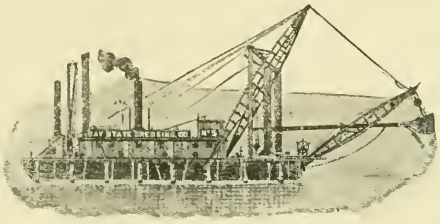

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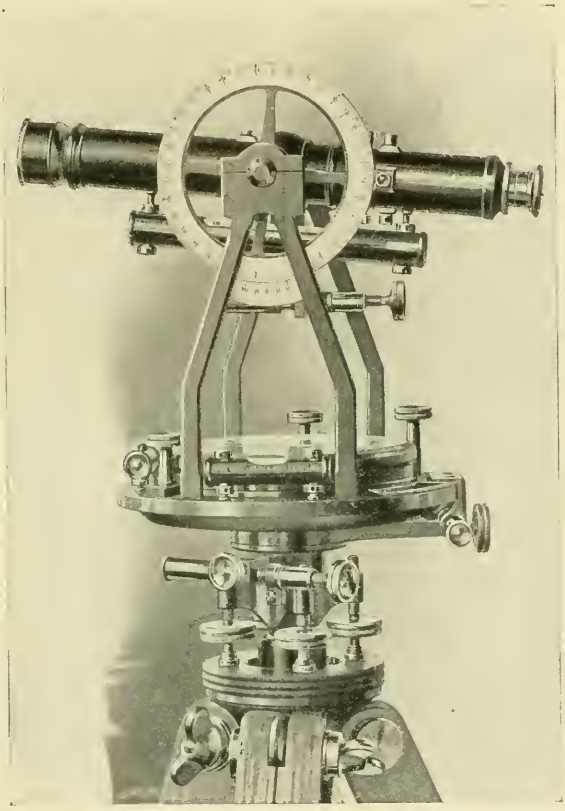

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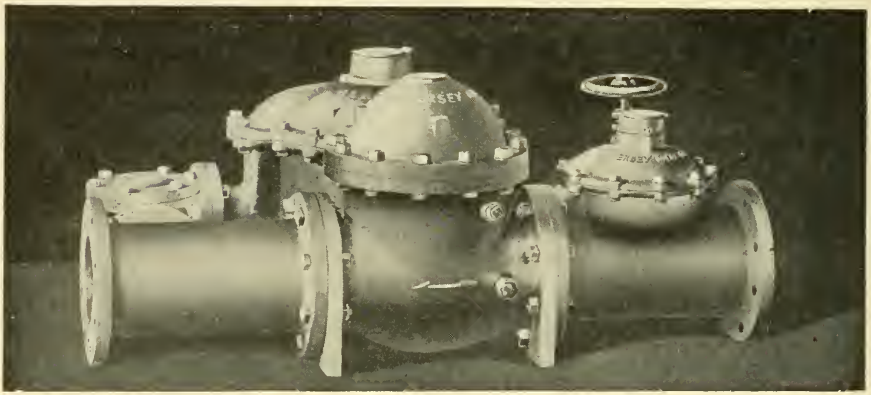

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NEW SERIES. JANUARY, 1913 No 68

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, January 22, 1913, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting:—To choose a Committee of Five to nominate officers for the ensuing year.

Mr. William H. Lewis, President of the Lewis-Wiley Hydraulic Co., of Seattle, Wash., and Portland, Ore., will give a talk entitled "HYDRAULICS IN CITY BUILDING."

This Company performed the work of the famous re-grades in Seattle whereby at Denney Hill and at Jackson Street Hill, grades of 15 to 20 per cent. were reduced to grades of 3 to 5 per cent, and the material at the same time used to fill the tide lands on the water front, which now constitute the entire terminals of the Great Northern, the Northern Pacific, and the Union Pacific railroads. Its work in Portland has been that of reducing a rough and inaccessible hill by hydraulic terracing and so converting it into the choicest residential portion of the City. This work was done under the plans of Olmsted Brothers of Brookline.

The talk will be profusely illustrated by lantern slides.

S. E. TINKHAM, *Secretary*.

SPECIAL MEETING OF THE SANITARY SECTION

[February 5, 1913]

A meeting of the Sanitary Section has been arranged for Wednesday evening, February 5, 1913, to be held in Social Hall, Tremont Temple, at 7.45 o'clock. This hall, on the seventh floor, adjoining the Society rooms, proved to be well adapted for the meeting of the Section held January 8, because it is higher studded and allows for better ventilation than either the old Society room or the City Club rooms. There will be no dinner connected with the meeting.

The subject of the evening will be "Intercepting Sewers." Papers will be read as follows:—

"The Intercepting Sewers of Syracuse, N. Y." Mr. Glenn D. Holmes, Chief Engineer, Syracuse Intercepting Sewer Board.

"The Rochester N. Y. Intercepting Sewer." Mr. John A. Skinner, Principal Ass't. Engr. Dept. of Engineering, Board of Public Works of Rochester.

"The New Bedford, Mass., Intercepting and Outfall Sewer." Mr. William F. Williams, Chief Engineer, Mass. Harbor and Land Commission, and formerly City Engineer of New Bedford.

"The Fitchburg, Mass., Intercepting Sewer." Mr. David A. Hartwell, Chief Engineer, Sewage Disposal Commission of Fitchburg.

Lantern slides will be used to illustrate the various features of special interest. It seems unnecessary to urge the members to be present, as it is evident that the speakers will bring many interesting facts concerning the design and construction of intercepting sewers and structures related thereto.

APPLICATIONS FOR MEMBERSHIP

[January 15, 1913.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Baldwin, Thomas Abbott, Boston, Mass. (Age 28, b. Baltimore, Md.) Graduate of Cornell University, 1908. From June, 1908, to March, 1909, with J. G. White & Co., on the construction of the Magic Dam in Idaho, as timekeeper and later as foreman in charge of concrete work; March, 1909 to February, 1910, with the Nore Construction Co., general contractor for the building of the U. S. Naval Training Station in North Chicago, Ill., as assistant superintendent of construction; February, 1910, to September, 1912, with the Pennsylvania Steel Co. in the Bridge and Construction Department, in the office and as resident engineer in charge of engineering features of erection, particularly in relation to moving lift bridges, and at the present time with same company as resident engineer in Boston Office. Refers to W. C. Cuntz, F. H. Fay, C. T. Fernald, B. W. Guppy, and J. W. Rollins.

Desmond, Edwin Andrew, Dorchester, Mass. (Age 20, b. Kingston, Ulster County, New York.) Graduate of Boston Public Schools, 1906; and of Mechanic Arts High School, 1910. During spring and summer of 1911, with the Shawmut Construction Co., as timekeeper on street and road building in Essex County; August, 1911 to July, 1912 with the Boston Transit Commission as rodman, and since August, 1912 rated as assistant inspector. Refers to G. C. Emerson, J. B. Flaws, J. T. Frame, and P. B. Walker.

McFarlin, Charles Kirk, East Orange, N. J. (Age 21, b. Topeka, Kan.) Graduate of Williams College with A. B. degree, 1912. At present a junior in the civil engineering course at M. I. T. Refers to C. F. Allen, C. B. Breed, W. H. Coburn, and A. G. Robbins.

Nagle, Arthur Rosengarten, Milford, Mass. (Age 25, b. Philadelphia, Pa.) Four years special student at Mass. Inst. of Technology. Summer of 1907 with P. M. and E. M. Blake, as draftsman, rodman and transitman on Wrentham and Provincetown Water Works; summer of 1909 inspector in charge of laying water pipe line, Lyndonville, Vt.; June to Dec., 1908, in charge of laying water pipe line at New Britain, Conn., and June, 1910, to Feb., 1911, inspector in charge of laying high pressure mains at New Britain, all of above for P. M. Blake; April, 1911, to Feb., 1912, with Erastus Worthington as assistant engineer in charge of constructing Medway Water Works system—pumping station, mains, steel standpipe with concrete foundation; assistant engineer in charge of constructing sewer extensions at East Dedham; chief of party in general surveying, and also of road relocation for County Commissioners; May to Nov., 1912, with F. A. Barbour as resident engineer in charge of sewer extensions, and general work in maintenance of system, filter beds, etc., Milford, Mass.; Nov., 1912, to present time in private practice as civil engineer and contractor, Milford, Mass. Refers to F. A. Barbour, E. M. Blake, P. M. Blake, W. W. Bigelow, H. A. Symonds, and Erastus Worthington.

Tobin, John Theodore, Princeton, W. Va. (Age 29, b. Boston, Mass.) Graduate of Boston Latin School, 1903, Mechanic Arts High School, 1904, Mass. Inst. of Technology, 1908. From June to October, 1906, with Boston Transit Commission as concrete inspector; June to October 1907 with same commission as inspector and transitman; June, 1908 to present time with Virginian Railway Co., in the following positions:—to September, 1909, as bridge inspector; to December, 1909 as building inspector at Princeton Shops; to March, 1910 as dredging inspector at Sewalls Pt. Coal Pier; to May, 1910 as transitman; to May, 1911 as building inspector at Victoria Shops; to February, 1912 as transitman in charge of construction and dredging, and to present time as resident engineer at New Princeton Shops. Refers to C. F. Allen, C. B. Breed, E. S. Davis, and G. F. Swain.

Wade, Clifford Linwood, New Bedford, Mass. (Age 28, b. Somerset, Mass.) Graduate of Mosher's Preparatory School, 1904; and from 1904 to 1906 attended the Mass. Institute of Technology. From June to August, 1906 with B. F. Smith Construction Co.; August, 1906 to January 1907 with Engineering Dept., New Bedford, as rodman; January, 1907 to present time with same department as draftsman and senior draftsman. Refers to G. H. Nye, W. F. Williams, R. C. P. Coggeshall and A. B. Drake.

MINUTES OF MEETINGS

DECEMBER MEETING OF THE SOCIETY

Boston, Mass., Dec. 18, 1912.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.45 o'clock, President James W. Rollins in the chair, 92 members and visitors present including ladies.

The reading of the records of the October and November meetings were dispensed with and they were approved as printed in the Bulletins for November and December.

The consideration of the revised report of the Committee on Code of Ethics was then taken up and after a short discussion by Prof. F. B. Sanborn, the code was adopted as printed in the November Bulletin.

The President announced the deaths of the following members of the Society:—

Theodore O. Barnard, died Oct. 20, 1912.
George A. Kimball, died Dec. 3, 1912.
Charles A. Allen, died Dec. 7, 1912.

By vote the President was requested to appoint committees to prepare memoirs of the deceased members named. The committees appointed are as follows:—

On memoir of George A. Kimball, Messrs. J. R. Worcester, J. W. Rollins and C. T. Fernald.

On memoir of Charles A. Allen, Messrs. William Wheeler, and H. P. Eddy.

The Secretary reported for the Board of Government that the following candidates had been elected to membership in the grade of members:—Messrs. Leslie Burton Ellis, John Stacey Humphrey, Joseph Aloysius Rourke, Harry Rogers Sprague, Arthur Stillman Tuttle, Albert Olof Wilson, and Bernard Blyth Wones.

The President then introduced Mr. George A. Harwood, Chief Engineer, Electric Zone Improvement, N. Y. C. & H. R. R. R., who read a paper entitled "The Construction of the New Grand Central Terminal for the New York Central and Hudson

River Railroad Company." The paper was illustrated by lantern slides and was listened to with marked attention. At its conclusion, on motion of Mr. Fay the thanks of the Society were unanimously voted to Mr. Harwood for his very interesting and instructive paper.

Adjourned. S. E. TINKHAM, *Secretary.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

MEN AVAILABLE

137. Age 25. One year at Mass. Inst. of Technology and two years at University of Wisconsin. Has had three years' experience, two years on construction and location, one year on concrete dam, buildings and sidewalk work. Desires position on concrete work.

138. Age 23. Three years at Tufts College and four years at Mechanic Arts High School. Has had two years and three months' experience as engineer and inspector on reinforced concrete structures, also as draftsman and estimator. Desires position in building or structural line. Salary desired, $100 per month.

139. Age 43. Graduate of Dorchester High School, and School for Industrial Foreman at M. I. T. Has had nineteen years' experience; twelve years as rodman to junior engineer, five years assistant and civil engineer for War Dept. U. S. Govt. at West Point, N. Y., during improvement to the Military Academy, and two years as civil engineer. Desires position in engineering, contracting, or superintending construction.

140. Age 32. Has had about fifteen years' experience, twelve years on surveys and construction, sewers, highways, railroad, and topographical work; two years on Mass. Electric High Tension line; one and one-half years on Intra-Coastal and Harbor work. Desires position as inspector or chief of survey or construction party. Salary desired, $75 per month.

141. Age 25. High school graduate. Has had five years' experience, one year in land surveying and calculating parcel-areas, drawing and field work, and four years in mechanical and electrical work, including some instrument work and topographical work. Desires position as transitman. Salary desired, $15 per week.

142. Age 24. Graduate of Tufts College with B. S. degree, 1912. Has had six months' experience as draftsman. Desires position in consulting engineer's office where some reinforced concrete work is being done. Salary desired, $80 per month.

143. Age 25. Graduate of Mass. Institute of Technology, 1910. Seven months' experience as rodman on park construction, chainman on street railway track work, transitman on pipe line, and concrete drain construction, and draftsman in charge of survey and map of yard of large industrial plant; about two years and at the present time with engineering concern from levelman to chief of party on street railway construction, special work installations, pole line location, and miscellaneous surveys. Desires position as chief of party or transitman. Salary desired, $100 per month.

LIST OF MEMBERS

ADDITIONS

DOHERTY, PHILIP J. .....Hale's Tavern, Wells River, Vt.
ELLIS, LESLIE B. .....34 Essex St., Melrose, Mass.
HUMPHREY, JOHN S. .....149 Paradise Road, Swampscott, Mass.
SPRAGUE, HARRY R. .....Engineer's Office, City Hall, Lowell, Mass.
TUTTLE, ARTHUR S. .....470 South Station, Boston, Mass.
WILSON, ALBERT O. .....92 Oxford Ave., Cambridge, Mass.
WONES, BERNARD B. .....42 Cathcart St., Montreal, Canada

CHANGES OF ADDRESS

ARMSTRONG, KENNETH P. .....17 Hampden St., Springfield, Mass.
BROCK, NATHAN S. .....4 Walnut St., Boston, Mass.
COBB, WILLIAM A. .....The Lenox, Auburn, Me.
FARLEY, WILLIAM F. .....822 New Birks Bldg., Montreal, Canada
FIELDING, WILLIAM J. .....16 Gorham Road, West Medford, Mass.
HAMMATT, E. A. W. .....15 Water St., Newton Centre, Mass.
HERSEY, FREDERIC M. .....80 South St., Hingham, Mass.
LANPHEAR, ROY S. .....11 Kingsbury St., Worcester, Mass.
RICE, JAMES ....340 West 86th St., "The Netherlands," New York, N. Y.
ROUTENBERG, HENRY W. .....P. O. Box 51, Lakeside, Ohio
SHUTE, GEORGE P. .....1248 South High St., Columbus, Ohio
TINKHAM, CHARLES S. .....126 Thornton St., Roxbury, Mass.

BINDING THE JOURNALS

Members who wish the Secretary to attend to the binding of their numbers of the *Journal* are requested to send them to Room 715, Tremont Temple, Boston, before March 1st.

Arrangements have been made by which members can have the *two* volumes bound in *one* for *70 cents*, or each volume bound separately for 50 *cents;* the style of binding to be the same and uniform with that of former years. Mark clearly which way it is desired the binding should be done.

MEMBERSHIP CARDS

The membership cards for 1913 will be ready for distribution within ten days and one will be mailed to any member who applies to the Secretary.

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Bureau of the Census. Supply and Distribution of Cotton, 1912.

Bureau of Mines. Smoke Abatement. Flagg.

Isthmian Canal Commission. Annual Report for 1912.

Isthmian Canal Commission. Census of Canal Zone, 1912.

Library of Congress. Annual Report for 1912.

Library of Congress. List of Publications since 1897.

Panama Canal Traffic and Tolls. Emory R. Johnson.

Public Roads Dept. Annual Report for 1912.

Public Roads Dept. Progress Reports on Dust Prevention and Road Preservation, 1911.

State Reports

Colorado. Biennial Report of State Engineer for 1909-10. Gift of C. W. Sherman.

Massachusetts. Annual Report of State Board of Health for 1911.

Michigan. Annual Report of State Board of Health for 1911.

New York. State Barge Canal, 1912. Bensel.

Wisconsin. Sandstones of the Wisconsin Coast of Lake Superior. Thwaites.

City and Town Reports

Chicago, Ill. Supplemental Report on Passenger Subways.

Haverhill, Mass. Annual Report of City Engineer for 1911.

Philadelphia, Penn. Annual Report of Bureau of Surveys for 1911.

San Francisco, Cal. Report on Future Water Supply. Spring Valley Water Co. Gift of F. C. Herrman.

San Francisco, Cal. Report on Water Supply. Chittenden and Powell. Gift of F. C. Herrman.

Miscellaneous

American Society of Civil Engineers. Transactions, 1912.

Disinfection of Sewage. Clark and Gage.

Municipal Engineers of New York. Standardization of Salaries.

National Board of Fire Underwriters. Ordinance to Regulate Maintenance of Moving Picture Machines. List of Electrical Fittings.

The second steel stack is in place, and all current engineering books (Section 10) will be transferred to its shelves.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.— SEWERAGE WORKS.— Work on Section 67, New Mystic Sewer, (Winchester and Medford) is in progress.

METROPOLITAN PARK COMMISSION.—*Charles River Reservation.*—Work of construction of Anderson Bridge across Charles River at North Harvard and Boylston Streets, is in progress.

Boston Transit Commission.—The portion of the Boylston-street Subway extending from Kenmore Street near the junction of Massachusetts Avenue and Beacon Street to near the Public Library building on Boylston Street is almost completed excepting the station near Massachusetts Avenue and a small part west of Hereford Street, near the Police Station. The Hugh Nawn Contracting Company is the contractor. The work is beginning on Section 4, extending from the Public Library to about 80 feet east of Berkeley Street. The Hugh Nawn Contracting Company is also the contractor for this section.

Section A of the Dorchester Tunnel, in Winter Street, is approaching completion. The Coughlan & Sheils Co. is the contractor.

On the extension of the East Boston Tunnel a trench about 70 feet long has been excavated on the easterly side of Court Street at Hanover Street and the sidewall of the tunnel built. Similar work is proceeding in Tremont Row between Brattle Street and Howard Street.

City of Boston.— PUBLIC WORKS DEPARTMENT, BRIDGE AND FERRY DIVISION.—*Chelsea Bridge North.*—The masonry of the centre pier has been laid and the work of erecting the steel draw span is now in progress. The draw fender pier is nearly

finished and work on both approaches is so far along that the paving can be laid as soon as the weather will permit.

L-Street Bridge, South Boston.—The repairing and strengthening of this bridge for heavy street car traffic is now in progress.

Public Boat Landings.—The floats for landings for small boats have been completed. The landing at Summer Street Bridge is completed, but the one at Northern Avenue Bridge awaits the placing of the steel work by which the float is to be connected with the bridge.

Lawndale Terrace Subway.—A passageway for foot travel is being built under the N. Y., N. H. & H. R. R. in an extension of Lawndale Terrace to Amory Street; this is about midway between the Boylston and Jamaica Plain Stations.

New York, New Haven & Hartford Railroad.—At Buzzard's Bay, Mass., the work of rebuilding the bridge over Cohasset Narrows has been completed, and the interlocking draw signals are now being installed.

At Clinton, Mass., the new arch over Woodlawn Street has been completed, and contractor is still at work on other unrestricted opportunities for development, and the site of masonry. Work at Clinton Freight House has been commenced.

Boston & Maine Railroad.— *Freight Yard, Mechanicville, N. Y.*—This yard, for classification of east bound freight received from the D. & H. Co. at that point, is some 2½ miles long. At the westerly end 10 receiving tracks will be provided which will hold 800 cars. Coming from these tracks the cars will pass over a hump and be classified by gravity in some 35 classification tracks. There is also to be built in this yard necessary transfer platforms, icing plant repair yards and a large engine terminal, including engine house with 25 stalls, coaling plant, repair shop, etc. This work was started in August and should be completed by July 1st, 1913.

New Line, Hinsdale to Brattleboro.—This line along the east bank of the Connecticut River running from the present line between South Vernon and Keene to Brattleboro, Vt., is to be 8 miles long and with a maximum grade of 5/10%. The work here will be built so as to provide for a double track in the near future, while at the present time only a single track will be built. There will be in this work over 1,000,000 yards of excavation and a bridge over 300 feet long over the Ashuelot River and one over 900 feet long over the Connecticut River. Work was started here last April and should be completed by February 1, 1913.

Somerville, Mass.— Grade Crossing Improvements.—Work for abolishing the grade crossings at Medford Street and Dane Street in Somerville is in progress. It is now ready for the steel for the new bridges.

Lynn, Mass.—Work is in progress for a four track line from the Saugus River to the Swampscott Line. This line for the main part will be elevated. Masonry work has been completed for part of this line and any other work will be finished by about July 1, 1913.

Billerica Shops.—The plant is located at North Billerica about four miles south of Lowell. The Railroad Company purchased in the neighborhood of 600 acres in order to have the shops will occupy of this purchase approximately 200 acres for yards for car storage, locomotive storage, lumber storage, and running repair tracks.

The buildings consist of the following:—Power House of approximately 3,000 B. H. P.; Locomotive Blacksmith Shop, 90 ft. x 332 ft.; Locomotive Machine and Erecting Shop, 160 ft. x 840 ft.; Stock House, 75 ft. x 422 ft.; Car Machine and Blacksmith Shop, 150 ft. x 200 ft.; Passenger Car Repair Shops, 282 ft. 6 in. x 314 ft.; Passenger Car Paint Shop, 265 ft. x 314 ft.

The above with necessary auxiliary buildings in the nature of iron house, lumber shed, dry kilns, paint stock houses,

etc. The layout was made with the view of being convenient for operation, and, also, so that extensions of any and all buildings may be made as required by future demands. The present intent is to make general repairs to 30 locomotives per month and 180 passenger cars. Work is expected to be completed by the summer of 1913.

Magnolia, Mass.—Simpson Bros. Corporation have the contract for constructing a reinforced concrete salt water swimming pool and pumping plant for same on their plans and specifications for the Magnolia Beach Associates. Work to be completed before May 15. Andrews, Jaques and Rantoul are architects for the owners.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Battleship RIVADAVIA, for the Argentine Navy.

U. S. Torpedo Boat Destroyers DUNCAN and CUSHING.

U. S. Submarine Boats K-1, K-2, K-5 and K-6, and 5 others.

U. S. S. NEVADA.

U. S. Submarine Tender NIAGARA.

Oil Steamer RICHMOND for the Standard Oil Co.

Four Carfloats for the N. Y., N. H. & H. R. R. Co.

Fishing Trawlers WAVE, BILLOW, and BREAKER for the Bay State Fishing Co.

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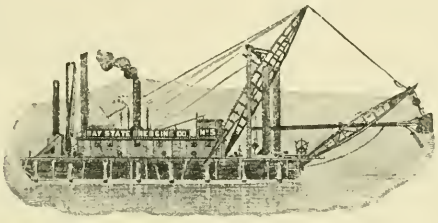

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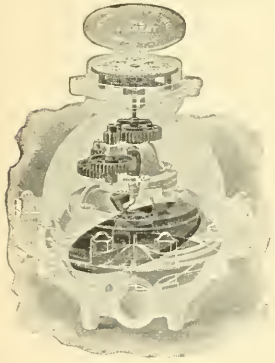

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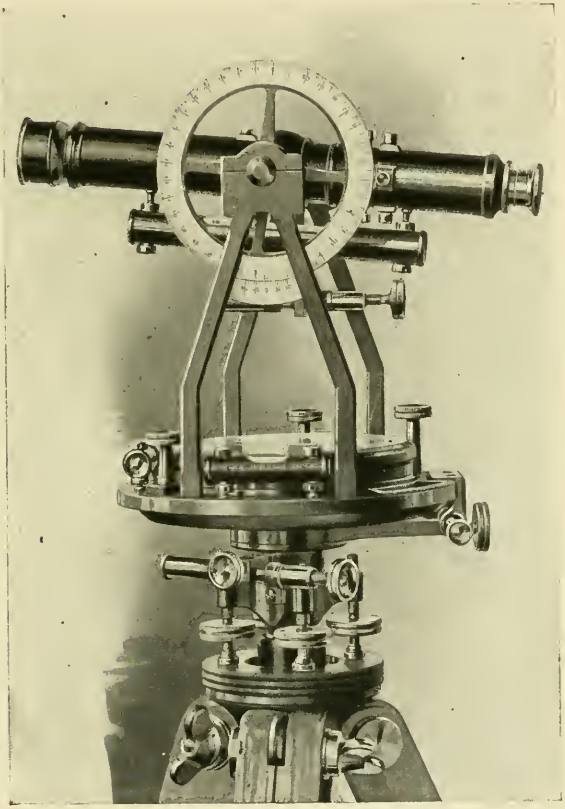

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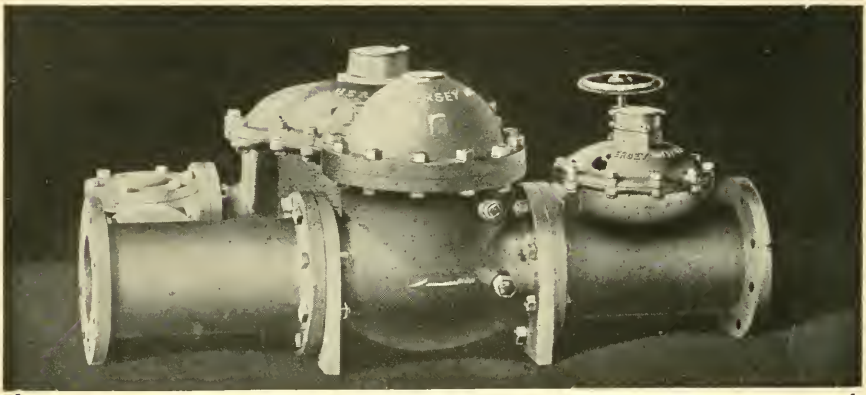

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NEW SERIES. FEBRUARY, 1913 No 69

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, February 19, 1913, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting:—To act on the following amendment to the By-Laws proposed by the Board of Government:—Amend by-law 7 by adding at the end of the second paragraph the following words: "Applicants who may be so situated as not to be personally known to four members, may be recommended by three members of the Board of Government."

The meeting will be devoted to discussions on Bridge and Structural Work. Members having matter of interest relating to this class of work are invited to present it to the meeting.

The following papers will be read:—

Prof. Lewis E. Moore will describe "A Small Bascule Highway Draw Span" recently built from his design.

Mr. Frederic H. Fay will give "Some Notes on Highway Bridge Floors."

Prof. Charles M. Spofford will give "An Account of Some Early Experiments upon Reinforced Concrete."

Mr. Joseph R. Worcester will have something to say on the subject of "Initial Stresses in Steel Sections."

The lantern will be used to illustrate the several papers and will be available for use in illustrating any matter which members may offer.

S. E. TINKHAM, *Secretary.*

EXCURSION WEDNESDAY, FEBRUARY 19, 1913

Through the courtesy of the engineers and contractors employed thereon, the members of the Society will be permitted to inspect the work now in progress on the Commonwealth Pier and the new Fish Pier at South Boston on Wednesday, February 19th.

Members are requested to meet at the Commonwealth Pier, Northern Avenue end, at 2 o'clock P. M.

EXCURSION COMMITTEE.

ANNUAL MEETING OF THE SOCIETY

The annual meeting of the Society will be held on Wednesday, March 19th, 1913, at the Boston City Club, 9 Beacon Street, Boston, where the very satisfactory accommodations of former years have been secured.

The Annual Meeting for the transaction of business and the announcement of the result of the letter ballot for officers will be held at 12 o'clock M. A short address will be made by the retiring President.

The Annual Dinner will be served at two o'clock in the Auditorium of the Club.

In the evening a Smoker will be held in the Auditorium at which light refreshments, music and other entertaining features may be expected.

Further details will be furnished in a special circular to be sent out early next month and in the March *Bulletin*.

ANNUAL MEETING OF THE SANITARY SECTION

The Annual Meeting of the Sanitary Section will be held Wednesday evening, March 5, 1913, at the Engineers' Club, corner Commonwealth Avenue and Arlington Street.

Dinner will be served in the main dining room of the Engineers' Club at 6 o'clock. Price, $1.00 per plate. Those desiring to attend the dinner should enter by the Commonwealth Avenue entrance.

The meeting will be held in the auditorium at 7.30 o'clock. Reports of committees will be received, and the election held for officers and members of the Executive Committee. Those attending the meeting only, should enter by the Arlington Street door.

The speaker of the evening will be Dr. S. H. Chuan, of Pekin, China, Physician to the Chinese Commissioner at Tibet. The subject will be: "A Glimpse of Tibet."

Dr. Chuan, who is now studying at the Harvard Medical School, has a most interestng collection of slides made from photographs taken during his stay of nearly a year in Tibet. Some of these have been published in the National Geographic Magazine.

Further particulars will be given in the circular to be sent out preceding the meeting.

BINDING THE JOURNALS

Members who wish the Secretary to attend to the binding of their numbers of the *Journal* are requested to send them to Room 715, Tremont Temple, Boston, before March 1st.

Arrangements have been made by which members can have the *two* volumes for any year bound in *one* for 70 *cents*, or each volume bound separately for 50 *cents;* the style of binding to be the same and uniform with that of former years. Mark clearly which way it is desired the binding should be done.

MEMBERSHIP CARDS

The membership cards for 1913 are now ready for distribution and one will be mailed to any member who applies to the Secretary.

APPLICATIONS FOR MEMBERSHIP

[February 12, 1913.]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the

eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Clifford, Walter Woodbridge, Hyde Park, Mass. (Age 25, b. Wiscasset, Maine). Graduate of Mass. Inst. of Technology, 1909. Previous to graduation had three summers' experience as rodman and transitman for various Mass. state boards on survey work. The two years following graduation assistant in Civil Engineering at Mass. Inst. of Technology. Summer of 1909 with Mass. Harbor and Land Commission on harbor surveys as transitman; summer of 1910 with Aberthaw Const. Co. on a concrete standpipe at Westerly, R. I., as assistant superintendent; June, 1911, to March, 1912, hydraulic engineer for U. S. Forest Service; summer of 1912 superintendent on the construction of the water and sewerage plant for the new Tech Summer School. Since this time have been with Metcalf & Eddy, the Aberthaw Const. Co. and C. B. Breed on various engineering work. At present structural steel draftsman at the Boston Navy Yard, Public Works Department. Refers to C. B. Breed, A. B. MacMillan, M. W. Rew, A. G. Robbins, and C. W. Sherman.

Ford, Walter Anthony, Boston, Mass. (Age 23, b. Staten Island, N. Y.) Graduate of Oliver Wendell Holmes Grammar School, 1906; Mechanic Arts High School, 1910. Summer of 1910 with Aspinwall & Lincoln, as rodman; 1910 to 1911 with Coffin Valve Co., as draughtsman; summer and fall of 1911 and part of summer of 1912 with Boston Transit Comm. as rodman on survey; since that time with Boston Transit Comm. as draughtsman. Refers to G. D. Emerson, J. B. Flaws, L. B. Manley, R. E. Rice, and G. H. Stearns.

Johnson, Frank Whittier, Somerville, Mass. (Age 24, b. East Boston). Attended Somerville and Brookline High Schools from 1905

to 1908, graduated from the Somerville High School having completed a mechanical and technical course. In March, 1913, will have completed a three years' course in structures at the Franklin Union. From Nov., 1909, to March, 1910, with Orcutt Train Stop Co., as draftsman; April, 1910, and at the present time with Ambursen Hydraulic Construction Co. as a hydro-electric draftsman. Refers to W. L. Church, H. L. Coburn, C. H. Eglee, and C. W. Ruth.

Marshall, Laurence Kennedy, West Medford, Mass. (Age 24, b. Newton Lower Falls, Mass.) Graduate of grammar schools of Somerville, high school of Medford, and Tufts College, 1911, B. S. C. E. From May to Oct., 1911, with N. Y. C. & H. R. R. R. as field assistant on valuation survey; Oct., 1911, to date, chief of line and grade party, Boston Transit Comm., on Boylston Street Subway. Refers to C. L. Brown, J. B. Flaws, L. B. Manley, and P. B. Walker.

Power, William John, Jr., Arlington Heights, Mass. (Age 23, b. Boston, Mass.) Graduate of Mechanic Arts High School, 1908. At Harvard College, 1908-09, and two years' work in evening school. From 1909 to 1911 with Boston Elevated Ry. Co. as rodman; 1911 to 1912 with New York, New Haven & Hartford R. R. as draughtsman. At present with Boston Transit Comm. as rodman. Refers to A. F. Brown, J. B. Flaws, H. W. French, and L. B. Manley.

Reed, Leslie Peter, Boston, Mass. (Age 23, b. Hyde Park, Mass.) Graduate of Pepperell High School, 1908. From 1910 to 1911 attended Lowell School for Industrial Foreman, and now attending evening courses at Franklin Union; 1908 to date with William S. Johnson as inspector on construction, rodman, instrumentman, and resident engineer on the following works: Pepperell Water Works, Maynard Sewage Disposal Works for American Woolen Co., Purification Works for Manufacturing Wastes from Tileston & Hollingsworth's Paper Mills at Mattapan, Water Works at Ashland, Deerfield, and Marblehead. Refers to F. S. Bailey, C. R. Gow, W. S. Johnson, R. W. Parlin, and G. H. Wetherbee, Jr.

Waldron, Samuel Bayson, Boston, Mass. (Age 42, b. Portsmouth, N. H.) Graduate of Mass. Inst. of Technology, 1893. Summer of 1893 engaged on land surveying; 1894 to 1897 with Boston Bridge Works, as draftsman; 1897 to 1898 with Pennsylvania Steel Co. as draftsman; 1898 to 1900 with Keystone Bridge Works, C. S. Co., Inc., as assistant engineer; 1900 to 1901 with Eastern Bridge & Structural Co. as assistant engineer; 1901 to date with American Bridge Co. as engineer in charge of plant, and later estimating and designing in N. Y. Office. At present Contracting Manager, Boston Office, American Bridge Co. of N. Y. Refers to M. F. Brown, F. H. Fay, W. H. Norris, O. E. Parks, G. F. Swain, and J. R. Worcester.

MINUTES OF MEETINGS

JANUARY MEETING OF THE SOCIETY

Boston, Mass., Jan. 22, 1913.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.45 o'clock, President James W. Rollins in the chair, about 225 members and visitors present, including members of the American Society of Mechanical Engineers and members of the Boston Section of the American Institute of Electrical Engineers.

By vote the reading of the record of the December meeting was dispensed with and it was approved as printed in the January *Bulletin*.

The Secretary reported for the Board of Government that the following candidates had been elected to membership in the grades named:—Members, Messrs. Arthur P. Porter and Leslie Jack Wertheim, and as a Junior, Mr. Philip Curtis Nash.

The President announced the death of Francis Blake, a member of the Society, who died January 19, 1913, and by vote the President was requested to appoint a committee to prepare a memoir. The President has named as that Committee, Mr. Desmond FitzGerald.

On motoin of Prof. Porter, it was voted that the chair be requested to appoint a committee of three to report to the meeting the names of five members to serve as a committee to nominate officers for the ensuing year. The chair appointed as that Committee, Messrs. Dwight Porter, Henry B. Wood and Robert R. Evans. Later in the meeting this Committee reported the following names as members of the Nominating Committee:—Messrs. Charles T. Main, George A. Carpenter, Arthur W. Dean, Laurence B. Manley, and Frank A. McInnes, and by vote they were elected as the nominating committee.

Mr. Charles Freed brought before the meeting the question of endorsing the project of the Lincoln Memorial Highway Association for building a highway between Washington and Gettysburg. But after a discussion and a ruling that it would be necessary, under the Constitution, to pass such an endorsement at two meetings, it was withdrawn.

The meeting then took the form of a joint meeting in which members of the American Society of Mechanical Engineers and of the Boston Section of the American Institute of Electrical Engineers took part.

President Rollins introduced the speaker of the evening, Mr. William H. Lewis, President of the Lewis-Wiley Hydraulic Company of Seattle, Wash., and Portland, Ore., who gave an exceedingly interesting talk on "Hydraulics in City Building" which was profusely illustrated by lantern slides.

Mr. Lewis described the work done by his company in Seattle whereby at Denney Hill and at Jackson Street Hill, grades of 15 to 20 per cent. were reduced to grades of 3 to 5 per cent., and the material at the same time used to fill the tide lands on the water front, which now constitute the entire terminals of the Great Northern, the Northern Pacific, and the Union Pacific railroads. Its work in Portland has been that of reducing a rough and inaccessible hill by hydraulic terracing and so converting it into the choicest residential portion of the City. This work was done under the plans of Olmsted Brothers of Brookline.

The distinctive features of the work done by Mr. Lewis's company are: *First*, The moving of so large an amount of dirt (17,000,000 yards) in the heart of a city; *Second*, The low cost of the work done by the hydraulic method as compared with moving it dry; *Third*, The building of permanent, solid embankments with 1½ to 1 slopes by hydraulic methods and without slides or slump-outs occurring; and *Fourth*, The carving out from the rough hillside, an ideal residence section in the heart of a large city.

The regrading done by hydraulic methods under contract with the City of Seattle was at a flat price of less than 25 cents a yard, in most cases covering the grading of streets on the hills and the filling of streets on the tide flats the price to cover the entire cost. This was done and the sides of the hill were covered with buildings, ranging from the one-story frame cottage to the 20-story brick school building, all of which had to be moved away or destroyed. The filled streets were raised on

trestles to as high as 46 feet above the original grades, and then filled to the true grade by the hydraulic method. Many large buildings were raised in the same way and the dirt turned under them; the foundations and underpinning put on posts and piles and then the dirt put in under and around the foundations by water.

As to the cost, the work done by City contract where there was not sufficient grade to carry the earth away by sluicing was done with steam shovels and cars at a contract price of over 55 cents per cubic yard, whereas the millions of yards moved by hydraulics cost from 20 to 27 cents per cubic yard.

In the building of embankments, the Company raised the level of city streets 60 feet wide as high as 50 feet above the muck bottom of the flats and maintained the slopes on a 1½ to 1 basis, the fill being made of blue clay delivered through pipes. In the Portland work, the Company built embankments 90 feet high on 1½ to 1 slopes, raising them at the rate of more than 2 feet per day, and has yet to suffer its first loss through slipping or sliding of a completed embankment. This has been done through the step or sheer board bulkhead method and by keeping the water so far as possible out of the embankment.

The methods used by Mr. Lewis's Company are well adapted to the building of earth dams and his Company is at present undertaking contracts for the construction of several such dams in different parts of the West during the coming year.

One remarkable feature of Mr. Lewis's work is that neither he nor his partner, Mr. Charles S. Wiley, deceased, were engineers nor had they any engineering or mechanical training. They were young lawyers in Seattle when they undertook their first hydraulic work for the purpose of improving a small piece of property which they owned on one of the high hills in Seattle. Starting in this experimental way, their work increased from year to year, until at the present time they are the leaders in the sluicing method of moving dirt and have built up a valuable organization through ten years of actual experience in all kinds of material and under diverse conditions.

An interesting discussion followed Mr. Lewis's talk, brought out by the many questions asked, and at its close Mr. Lewis was accorded a unanimous vote of thanks for his very interesting and instructive lecture.

Adjourned.

S. E. Tinkham, *Secretary.*

SPECIAL JANUARY MEETING OF THE SANITARY SECTION

Boston, Mass., Jan. 8, 1913.—A special meeting of the Sanitary Section of the Boston Society of Civil Engineers was held this evening in Social Hall, Tremont Temple. Chairman George C. Whipple called the meeting to order at 8 o'clock, introducing Prof. R. C. Carpenter, of the Dept. of Experimental Engineering of Cornell University, as the speaker of the evening. Prof. Carpenter's paper on "Ventilation" contained a careful detailed description of the theories and data upon which modern practice in ventilation is based.

The discussion was opened by Mr. D. D. Kimball, Heating and Ventilating Engineer of New York City. Mr. Kimball spoke from experience with various ventilating problems, and referred particularly to the New York School experiments.

Mr. M. C. Whipple of the Sanitary Engineering Dept. of Harvard University described briefly a series of analyses made on air washer water at Springfield, Mass.

Prof. Earle B. Phelps gave an account of the experimental work now under way at the Massachusetts Institute of Technology.

Others who participated in the discussion were Messrs. G. C. Whipple, R. S. Weston, Edward Wright, Jr., and Gifford LeClear.

A vote of thanks was extended to Prof. Carpenter, Mr. Kimball and Mr. LeClear for the valuable information they had contributed.

The attendance was 50. Meeting adjourned.

Frank A. Marston, *Clerk.*

SPECIAL FEBRUARY MEETING OF THE SANITARY SECTION

Boston, Feb. 5, 1913.—A special meeting of the Sanitary Section of the Boston Society of Civil Engineers was held this evening in Gilbert Hall, Tremont Temple. The meeting was called to order at 8 o'clock by Chairman George C. Whipple. Following the custom established last year, the Chairman stated that unless there were objections raised, he would appoint a nominating committee to act informally and report at the regular March meeting. No objections were offered and the chairman appointed the following members: Messrs. Edward Wright, Jr., H. K. Barrows, and R. S. Weston.

The Chairman stated that he had received word from Mr. Edwin A. Fisher, City Engineer of Rochester, to the effect that business engagements prevented his being present at the meeting to read the paper on the Rochester, N. Y., Intercepting Sewer as advertised, but that he would be glad to present the paper to the Society for publication.

Mr. Glenn D. Holmes, Chief Engineer of the Syracuse Intercepting Sewer Board, was then introduced and gave a very interesting illustrated paper on the Intercepting Sewer Work and River Improvements, which have recently been carried on in Syracuse, N. Y.

Mr. William F. Williams gave a very interesting talk, illustrated by a large number of lantern slides, upon the Intercepting and Outfall Sewer, now under construction at New Bedford, Mass. Mr. Williams, although at present Chief Engineer of the Mass. Harbor and Land Commission, still retains supervision over this work, which was started while he held the office of City Engineer. The Screen Chamber construction and method of laying the submerged Outfall Sewer contained many features of special interest.

Mr. David A. Hartwell, Chief Engineer, of the Sewage Disposal Commission of Fitchburg, presented a paper on the Fitchburg Intercepting Sewer, which has been under construction for the past two years. Aside from the general details of the sewer construction, the features of special interest were the

Siphon Chamber and the Grit Chamber. The latter especially being of an unusual type.

A vote of thanks was extended to the speakers for their courtesy in presenting the valuable papers of the evening.

Considerable interest was shown throughout the evening and although many of the men came from out of town, the majority stayed through the long program until the meeting adjourned at 10.20 o'clock. The attendance was 64.

FRANK A. MARSTON, *Clerk.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

POSITION AVAILABLE

07. A good map draftsman, one who understands trigonometry and Engineering News style of lettering preferred. $75.00 per month would be paid the right party to start with.

MEN AVAILABLE

143. Age 25. Graduate of Mass. Institute of Technology, 1910. About two and one-half years' experience. Seven months as rodman on park construction, chainman on street railway track work, transitman on pipe line and concrete drain construction, and draftsman in charge of survey and map of large industrial plant; about two years and at present time with engineering concern from levelman to chief of party, on electric and steam railroad construction and location, street railway special work installations, high-tension pole line location, and miscellaneous surveys. Desires position as chief of party or transitman. Salary desired, $100 per month.

144. Age 21. Graduate and post-graduate of Mechanic Arts High School, 1908 and 1909; studied structural engineering at the Franklin Union. Has had three years' experience on subway construction as concrete inspector, rodman, transitman and chief of party. Desires position as transitman, chief of party or inspector. Salary desired, $21 per week.

145. Age 21. High school graduate, no experience. Desires either office or outside work.

146. Age 36. Graduate of Mass. Institute of Technology in Civil Engineering. About 14 years' experience, one year on field work and the remainder of the time from draughtsman and office assistant to assistant engineer in charge of business office and draughting room. Desires position in or near Boston with engineer or contractor. Salary desired, $150 per month.

147. Technical training at Tufts College and Institute of Technology. Over 20 years' experience in municipal engineering and topographical surveying; has had charge of the laying out and engineering construction of large private estates, and recently has had charge of dam, reservoir, and pipe line construction.

LIST OF MEMBERS

ADDITIONS

Holmes, Albert J. ..... 849 Broadway, South Boston, Mass.
Nash, Philip C. ..... 9 Mansfield St., Allston, Mass.
Rourke, Joseph A. ..... 1 City Sq., Charlestown, Mass.
Smith, Edward R. ..... 7 Tufts St., Malden, Mass.
Wertheim, Leslie J. ..... Berlin, N. H.

CHANGES OF ADDRESS

Brown, T. Morris ..... 17 Gramercy Park, New York, N. Y.
Bruce, Herbert P. ..... 98 Willow Rd., Nahant, Mass.
Farnum, Loring N. ..... San Mateo, California
Francis, George B. ..... 43 Exchange Pl., N. Y.
Glendenning, Henry J. ..... 27 Bryant St., Portland, Me.
Kelley, Daniel P. ..... 49 La Salle St., West Roxbury, Mass.
Lavalle, Albert H. ..... Overlook Farm, R. F. D., Palmer, Mass.

MALLEY, PATRICK J. .....246 Park St., Dorchester, Mass.
SHAILER, ROBERT A. .....1030 Lexington Ave., New York, N. Y.
SMITH, CHESTER W. .....722 Centre St., Wallingford, Conn.
TIBBETTS, FRED E. .....Puerto Plata, Santo Domingo
TREADWELL, EDWARD D. .....330 Summit Ave., Webster Grove, Mo.
WHEELER, BERTRAND T. .....232 St. John St., Portland, Me.

DEATHS

BLAKE, FRANCIS .....Died January 19, 1913

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

State Reports

Massachusetts. Harbor and Land Commission Atlas of Boundary Lines: Amherst, etc.

Massachusetts. Population as determined by Thirteenth Census. Gift of H. S. Knowlton.

New York. Annual Report of Health Dept. for 1911.

City and Town Reports

Attleboro, Mass. Annual Reports of Town Officers for 1911.

Boston, Mass. Report of Cochituate Water Board on Laying of New Main Pipe, 1860.

Boston, Mass. Report on Water Supply, 1883.

Boston, Mass. Special Report of Water Board, 1883.

Boston, Mass. Shawsheen Water Supply, five reports, 1881-83, 1886-87. Above four items the gift of Dexter Brackett.

Boston, Mass. Annual Report of Water Dept. for 1908.

Boston, Mass. Annual Report of Public Works for 1911.

Boston, Mass. Annual Report of Transit Commission for 1911.

Brdgewater, Mass. Annual Report of Town Officers for 1907.

Brockton, Mass. Annual Reports of Water Commissioners for 1909 and 1910.

Burlington, Vt. Annual Report of Water Dept. for 1909.

Chelsea, Mass. Annual Reports of Water Commissioners for 1909 and 1910.

Cincinnati, Ohio. Final Report of Commissioners of Waterworks, 1909.

Cincinnati, Ohio. Annual Report of Water Dept. for 1909.

Cleveland, Ohio. Annual Reports for 1905.

Clinton, Mass. Annual Reports of Town Officers for 1908.

Clinton, Mass. Annual Report of Water Commissioners for 1910.

Concord, Mass. Annual Report of Water and Sewer Commissioners for 1906.

Danvers, Mass. Annual Report of Water Commissioners for 1910.

Easthampton, Mass. Annual Reports of Town Officers for 1906, 1907 and 1908.

Easton, Mass. Annual Reports of Town Officers for 1910.

Essex, Mass. Annual Reports of Town Officers for 1911.

Fall River, Mass. Annual Reports of City Engineer for 1909 and 1910.

Framingham, Mass. Annual Report of Water Dept. for 1910.

Gardner, Mass. Annual Report of Sewer Commissioners for 1910.

Greenfield, Mass. Annual Report of Fire District No. 1 for 1908.

Halifax, N. S. Annual Reports of Civic Government for 1894, 1895 and 1896.

Halifax, N. S. Annual Report of City Engineer for 1906.

Harrisburg, Pa. Annual Reports of Water and Lighting Dept. for 1909 and 1910.

Hinsdale, Mass. Annual Reports of Fire District for 1908 and 1911.

Holbrook, Mass. Annual Report of Water Commissioners for 1910.

Hopedale, Mass. Annual Report of Town Officers for 1911.

Hyde Park, Mass. Annual Report of Town Officers for 1908.

Lowell, Mass. Annual Report of Supt. of Streets for 1905.

Lowell, Mass. Annual Report of Water Board for 1910.

Marblehead, Mass. Annual Report of Water Commissioners for 1908.

Marion, Mass. Annual Report of Town Officers for 1908.

Middleboro, Mass. Annual Reports of Fire District for 1908, 1910 and 1911.

Natick, Mass. Annual Report of Water Commissioners for 1909.

New Britain, Conn. Annual Report of Water Commissioners for 1904.

Newburyport, Mass. Annual Reports for 1906, 1907, 1908 and 1910.

North Chelmsford, Mass., Fire District. Annual Report of Water Commissioners for 1907.

Norwich, Conn. Annual Report of Water Commissioners for 1905.

Philadelphia, Pa. Annual Report of Bureau of Water for 1902.

Providence, R. I. Annual Report of Dept. of Public Works for 1912.

Revere, Mass. Annual Reports of Town Officers for 1909 and 1911.

St. Paul, Minn. Annual Report of Dept. of Public Works for 1905.

Salem, Mass. Annual Reports of Sewerage Commissioners for 1904 and 1905.

Springfield, Mass. Annual Report of Supt. of Streets and Sewers for 1910.

Walpole, Mass. Annual Reports of Water Commissioners for 1910 and 1911.

Waltham, Mass. Annual Reports of Water Dept. for 1909 and 1910.

Webster, Mass. Annual Reports of Water Commissioners for 1909 and 1910.

Whitman, Mass. Annual Reports of Water Commissioners for 1909 and 1910.

Winthrop, Mass. Annual Report of Town Officers for 1910.

Winchendon, Mass. Annual Report of Water Commissioners for 1908.

Yonkers, N. Y. Annual Report of Bureau of Water for 1911.

Miscellaneous

An Appreciation of Two Great Workers in Hydraulics. Walter G. Kent. Gift of the author.

Municipal Engineers of the City of New York. Proceedings, 1904-11, eight volumes.

International Association of Navigation Congresses. Proceedings, 1912. Report of Executive Committee, 1912. Conclusions of Twelfth Congress, 1912. Reinforced Concrete in Hydraulic Works. Friedrich Schnapp.

Travaux du Port de Bizerte et de l'Arsenal de Sidi-Abdullah. Hersent.

FREDERIC I. WINSLOW, *Librarian.*

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Park Commission.—*Charles River Reservation.*—Work of construction of Anderson Bridge is in progress.

State Board of Health.—*Neponset River Improvement.*—Work under the contract between the State Board of Health and the Barge Canal Construction Company of New York City, for the improvement of the Neponset River was started on Tuesday, January 28th, at a point about 3,000 feet below Pauls Bridge in Milton, opposite the old pumping station of the Hyde Park Water Company. At this point the contractor installed a new steel dipper dredge built by the Fairbanks Steam Shovel Company of Marion, Ohio. This dredge is 70 feet long and 18 feet wide exclusive of the out-riggers for the forward spuds. The body is made up of 10 steel sections, bolted together, each section being 7 feet long, 18 feet wide and 6 feet deep. The hull is completely housed over so that all of the operating machinery is under cover. This machinery includes the hoisting and turning drums and engines for the dipper and the boom, two spud engines for the forward anchors and the stern spud, a dynamo plant with electric wiring and lights and a 50 H. P. horizontal marine boiler. The coal is stored on each side of the boiler, a full load being 15 tons. The boom is 60 feet long, the dipper arm about 40 feet long and the steel dipper has a capacity of 1¼ cubic yards. When working in very hard material, steel teeth are attached to the cutting edge of the dipper. When loaded full, the mean draft is about 3.5 feet, showing a displacement of over 140 tons.

The progress to date has been at the rate of about 400 cubic yards per day of two 8 hour shifts which is less than one-

half the capacity of the dredge in open work where trees do not interfere.

Directors of the Port of Boston.—Pier No. 6 (Fish Pier), South Boston.—About 99 per cent. of the work required to be done by the Commonwealth on this pier has been finished. The only work remaining to be done is the completion of the gravel surfacing and the timber fender.

Commonwealth Pier No. 5.—The work of reconstructing and equipping the Commonwealth Pier No. 5 is being pushed as rapidly as possible, the contractor working two shifts of men a total of about sixteen hours a day including Sundays. The time of completion clause of the contract calls for the central shed without the upper story and the whole of the easterly shed, excepting 100 feet at the land end of both sheds, to be entirely completed by May 1, 1913. At the present time the larger part of the spruce piles for the support of the columns of these sheds have been driven and about 50 per cent. of the concrete footings have been placed on the pile foundations. Considerable work has been done in removing the timber platform and rebuilding preparatory to the construction of a reinforced concrete platform. Derricks are being erected for the handling of the steel for the sheds and already some of the steel has been received from the shop.

The dredging of the docks and approaches to the pier is about 90 per cent. completed.

Miscellaneous.—A contract for making diamond drill borings at the proposed site of the dry dock has been awarded to the Healey Contracting Company. Studies are being pursued on the water front development of South Boston and East Boston.

City of Boston.—Public Works Department, Sewer and Water Division, Sewer Service.—Completion of Stony Brook at Washington Street, Forest Hills and west of the railroad embankment; the Union Park Street double sewer crossing Harrison Avenue and Washington Street; special I-beam construction affording cradles for pipes and conduits.

Boston Transit Commission.—The portion of the Boylston Street Subway extending from Kenmore Street, near the junction of Massachusetts Avenue and Beacon Street, to near the Public Library Building, comprising contract Sections 1, 2 and 3, is almost completed, excepting the station near Massachusetts Avenue, which station is a part of Section 2. The work on Section 4, extending to about 80 feet east of Berkeley Street, is now in progress. The Hugh Nawn Contracting Company is the contractor for the four contract sections.

Section A of the Dorchester Tunnel, in Winter Street, is approaching completion. The work is being continued, crossing under the Washington Street Tunnel and under the Summer Street lobby. The Coughlan & Sheils Co. is the contractor.

On the extension of the East Boston Tunnel the construction of a part of the station under and near the present station in Scollay Square between Brattle Street and Howard Street is in progress. The westerly sidewall and sewer are being built in Tremont Row between Brattle Street and Howard Street. The building at the southerly corner of Court Street and Hanover Street is being underpinned. Isaac Blair & Company are the contractors.

New York, New Haven & Hartford Railroad.—Bridge over Cohasset Narrows at Buzzards Bay is completed, and contractor now removing temporary bridge.

Filling and excavating for elimination of grade crossings at Clinton, Mass., now in progress.

Building forms and placing concrete to first-floor level of new Freight House, Clinton, is also in progress.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Battleship RIVADAVIA for the Argentine Navy.
U. S. Torpedo Boat Destroyer DUNCAN.
U. S. Battleship NEVADA.
U. S. Submarine Tender NIAGARA.
Oil Steamer RICHMOND for the Standard Oil Co.
Four steel carfloats for the N. Y., N. H. & H. R. R. Co.

Steam Trawlers WAVE, BILLOW and BREAKER for the Bay State Fishing Co.

U. S. Torpedo Boat Destroyer CUSHING.

Nine submarine torpedo boats.

THE

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offers its services in connection with the engineering work of members of the Society. Erecting, carting, unloading and rigging all over New England, and can show hundreds of first-class references. . . . . .

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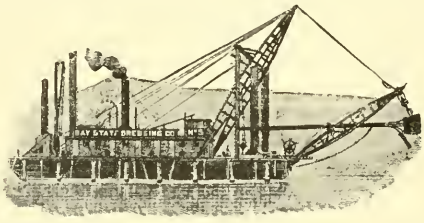

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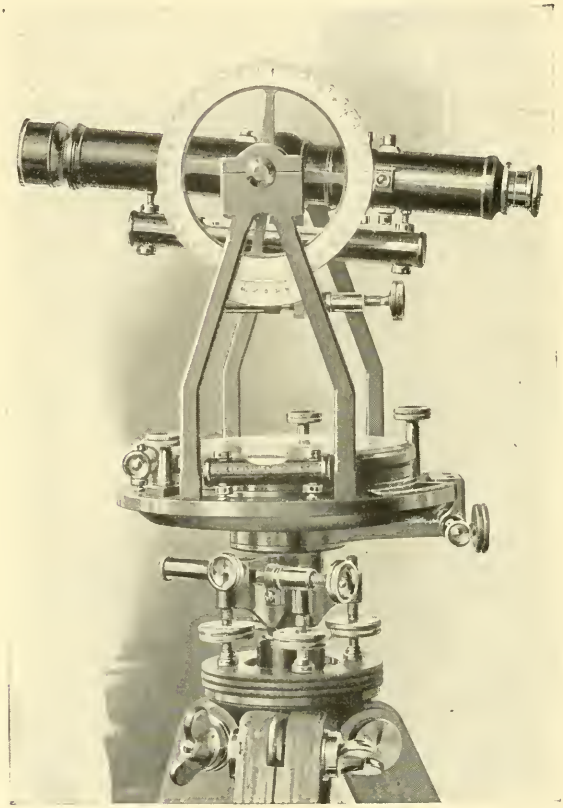

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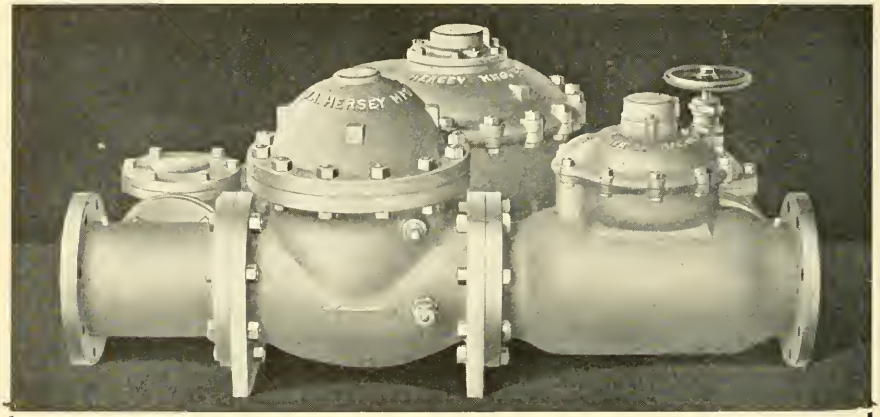

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BOSTON SOCIETY OF CIVIL ENGINEERS

ORGANIZED JULY 3, 1848

MONTHLY BULLETIN.

NEW SERIES. MARCH, 1913 No 70

SIXTY-FIFTH ANNUAL MEETING

The annual meeting of the Boston Society of Civil Engineers will be held at the Boston City Club, 9 Beacon Street, Boston, on Wednesday, March 19, 1913.

As previously announced the annual meeting this year will consist of three principal features: a business meeting at noon, the annual dinner in the afternoon and the smoker in the evening.

PROGRAM

Business Meeting.—The annual meeting required by the Constitution will be called to order at 12 o'clock M., in Rooms 4 and 5, on the third floor of the Club House.

BUSINESS.—Announcement of the election of new members.

To act on the following amendment to the By-Laws, adopted at the last meeting:—Amend by-law by adding at the end of the second paragraph the following words: "Applicants who may be so situated as not to be personally known to four members, may be recommended by three members of the Board of Government."

To receive the annual reports of the Board of Government, of the Treasurer and of the Secretary.

To receive the annual reports of the several special committees.

To reappoint the several special committees.

Announcement of the result of letter-ballot for officers for the ensuing year.

Presentation of the Desmond FitzGerald Medal.

Address of the retiring President.

Annual Dinner.—The 31st annual dinner will be served at 2 o'clock P. M., in the Auditorium on the fourth floor of the Club House.

The price of tickets for the dinner will be $2.00 per plate. Members are at liberty to invite guests to the dinner as usual.

At 4 o'clock, Mr. J. Waldo Smith, Chief Engineer, Board of Water Supply of New York, will give an illustrated talk entitled, "Some Features of the Contracts, Specifications and Construction of the Catskill Water Supply for the City of New York."

The meeting will be open to those who do not find it convenient to attend the dinner.

Smoker.—An informal smoker will be held in the Auditorium, beginning at 7 o'clock P. M. For the past four years this feature of the Annual Meeting has been so thoroughly enjoyed by members and their guests that it has been decided not to make any material change in the program of last year. The exercises will be as informal as in the past; the music will be of the same character, the old songs and possibly some new ones will be sung, a short special entertainment will be given and light refreshments will be served.

The plan adopted for the last two years, which has proved very satisfactory, will be repeated this year, and each member is asked to contribute his share towards the expenses of the Smoker by purchasing a ticket, the price of which has been placed at $1.00.

Registration, Tickets and Badges

Members and guests who attend any of the functions of the Annual Meeting will find it more convenient to go directly to the third floor of the Club House, where special coat rooms will be provided for the exclusive use of the Society.

The rooms on the third and fourth floors which have been

assigned to the Society for the Annual Meeting are entirely apart from the rest of the Club House used by its members.

Rooms 4 and 5 will be used as the Society headquarters continuously throughout the day and evening.

Each member is requested to register on cards provided for the purpose immediately on his arrival and to secure a badge which will be a means of identification throughout the meeting. They are also requested to register any guest whom they may introduce and to procure for him a special guest badge.

Members are urged to purchase at the time of registration the tickets they desire for the Dinner and the Smoker, as admission will be strictly by tickets for both members and guests.

The prices for tickets have been fixed as follows:

Dinner tickets .....$2.00 each
Smoker tickets ..... 1.00 each
Combination tickets for Dinner and Smoker 2.50 each

It is indispensable that the Committee be informed at as early date as possible how many will attend the several gatherings so that ample and satisfactory arrangements may be made. If a member finds that he can attend only the business meeting, it will help the Committee to know it in advance so that his badge may be prepared for him. The Committee, therefore, urges you most earnestly to fill out and mail at once the postal card already sent you, stating your intentions.

J. W. ROLLINS,
C. R. GOW,
C. W. SHERMAN,
S. E. TINKHAM,
Committee.

MINUTES OF MEETINGS

FEBRUARY MEETING OF THE SOCIETY

Boston, Mass., February 19, 1913.—A regular meeting of the Boston Society of Civil Engineers was held this evening

at Chipman Hall, Tremont Temple, and was called to order at eight o'clock by its President, James W. Rollins; 112 members and visitors were present.

The reading of the record of the last meeting was dispensed with, and the record was approved as printed in the February Bulletin.

The Secretary reported for the Board of Government that the following candidates had been elected to membership in the grades named; — *Members*, Messrs. Thomas Abbott Baldwin, Arthur Rosengarten Nagle, John Theodore Tobin, and Clifford L. Wade, and as *Juniors*, Edwin Andrew Desmond and Charles Kirk McFarlin.

The Secretary proposed for the Board of Government the following amendment to the by-laws which had been printed in the notice of the meeting: — Amend by-law 7 by adding at the end of the second paragraph the following words: "Applicants who may be so situated as not to be personally known to four members, may be recommended by three members of the Board of Government." On motion of Mr. Fay, the amendment was adopted by a unanimous vote.

The President announced the death of Albert S. Cheever, a member of the Society, which occurred on February 17, 1913, and in accordance with the usual custom a committee was appointed to prepare a memoir; it consists of Messrs. Henry W. Hayes and J. Parker Snow.

On motion of Mr. Gow, the thanks of the Society were voted to those who had extended courtesies to its members on the occasion of the excursion this afternoon to the Commonwealth Pier and the New Fish Pier at South Boston; Gen. Hugh Bancroft, Chairman of the Directors of the Port of Boston, Messrs. Monk & Johnson, the H. P. Converse Co., and Tyson, Weare & Marshall.

The following papers were then presented and read:

"A Small Bascule Highway Draw Span," by Prof. Lewis E. Moore.

"An Account of Some Early Experiments upon Reinforced Concrete," by Prof. Charles M. Spofford.

"Some Notes on Highway Bridge Floors," by Frederic H. Fay.

The lantern was freely used in illustrating these papers.

Mr. Joseph R. Worcester presented a paper entitled, "Initial Stresses in Steel Sections," and on his suggestion the paper was read by title order. It will be printed in an early number of the Journal of the Association of Engineering Societies.

Adjourned.

S. E. Tinkham, *Secretary*.

MARCH MEETING OF THE SANITARY SECTION

Boston, Mass., March 5, 1913:—The annual meeting of the Sanitary Section of the Boston Society of Civil Engineers was held this evening at the Engineers Club, corner of Commonwealth Avenue and Arlington Street.

Dinner was served to 48 members and guests shortly after 6 o'clock in the main dining room of the Club. The chef and his assistants established a reputation for themselves, both as to quality of food and service, which together with the courteous attention rendered by the other employees made a most favorable impression.

At the close of the dinner, the members adjourned to the Assembly Hall on the ground floor, where the business meeting was called to order at 7.30 o'clock by Chairman George C. Whipple.

The chair announced that unless there were objections, the reading of the minutes of previous meetings would be omitted and the minutes approved as printed in the Bulletins of the Society. No objections were raised and accordingly the minutes were declared approved as printed.

The Committee on Rainfall and Runoff, Mr. George A. Carpenter, Chairman, submitted a brief progress report. A motion was made, seconded and carried that the report be accepted and placed on file.

The report of the Executive Committee of the Section was read by the Clerk. Upon motion made and seconded, it was voted to accept the report and to place it on file.

Mr. Edward Wright, Jr., reported for the Nominating Committee the following nominations for officers to serve for the ensuing year: —

Chairman,	Edmund M. Blake
Vice Chairman,	Hector J. Hughes
Clerk,	Frank A. Marston

Members of Executive Committee

George C. Whipple
George A. Sampson
Ezekiel C. Sargent

On motion of E. P. Adams, duly seconded, it was voted to accept the report, and to instruct the Clerk to cast one ballot for the officers as nominated.

The Clerk cast a ballot as instructed, and the officers were declared elected to serve for the year ending March, 1914.

Under the item for new business, Mr. George A. Carpenter requested the privilege of recalling to the minds of the members the fact that during the past year the Chairman of the Section had always been ready to do his duty no matter in what direction that might lead, and that as a proof of this fact he desired to submit a few lantern slides made from photographs taken on the June excursion in Worcester. These photographs showed the sludge from the experimental Imhoff tank in various stages of drying. The last of the series caused considerable amusement as it showed "The Chairman Attending to His Official Duties" even to the point of holding sludge within two inches of his nose to prove that the nauseating odor had entirely disappeared.

As there was no further business to be acted upon, the Chairman introduced, as the speaker of the evening, Shaoching H. Chuan, M. D., of Pekin, China, who gave a most interesting and unique talk upon "A Glimpse of Tibet." Dr. Chuan showed that during his year's stay on "The Roof of the World" he had been a careful student of the country and customs, and that by the unusual collection of lantern slides, numbering more than 100, he had used his camera to good advantage. As medical officer of the Chinese Mission to Tibet, Dr. Chuan was privi-

leged to photograph many objects that would be forbidden to the usual tourist. His descriptions, although brief, were to the point, and when enlivened by a keen sense of humor, they made the talk one to be remembered. It was clearly brought out that although Tibet is an enormously rich country for its size, the people as a majority live in primitive life amidst the worst forms of religious superstition and degradation.

A considerable portion of Dr. Chuan's talk together with 60 illustrations will be founed in The National Geographic Magazine, Vol. 23, No. 10, October, 1912, p. 959.

A vote of thanks was extended the speaker for his courtesy in giving such an instructive and interesting talk.

Chairman George C. Whipple then introduced Mr. Edmund M. Blake, who spoke briefly in apreciation of the honor conferred upon him, and of his purpose to do all in his power to make the ensuing year one of continued activity in the Sanitary Section.

There were 68 present at the meeting. Adjourned at 9.30 o'clock.

FRANK A. MARSTON, *Clerk.*

APPLICATIONS FOR MEMBERSHIP

(March 12, 1913)

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members

as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Bainbridge, Randolph, North Weymouth, Mass. (Age 38, b. Brooklyn, N. Y.) Graduate of English High School in 1892. Took some special courses while employed. From 1893-1908 with Whitman & Howard of Boston on municipal and general construction work; 1908-1912 commissioner of public works, City of Quincy. At present engineer on Weymouth Back River Bridge. Refers to E. W. Branch, A. S. Glover, Channing Howard, E. C. Sargent, and F. E. Tupper.

Bonnet, Frederick, Jr., Worcester, Mass. (Age 35, b. St. Louis, Mo.) Graduate of Washington University, St. Louis, Mo., B. S. 1899. Entered Graduate School of Harvard from which the degree of M. S. was obtained, 1902 and Ph. D., 1903. From 1903-1904 instructor of chemistry, State University of Iowa, Iowa City, Iowa. At present instructor and assistant professor of chemistry, Worcester Polytechnic Institute. Refers to H. P. Eddy, A. L. Fales, Leonard Metcalf, and F. A. Marston.

Carter, Clarence Elmore, Reading, Mass. (Age 30, b. Reading, Mass.) S. B. Mass. Inst. of Technology 1906. From Summer 1897 to Apr. 1900 with James A. Bancroft, Reading, in minor capacities, on surveying and town work; Apr. 1900 to Oct. 1902, May to Oct. 1903 and June to Oct. 1904 with Raymond C. Allen, Manchester, Mass., in charge of party and on office work on various surveys, town work, laying out streets, buildings and drainage; inspector on installation of Electric Light conduits; June to Oct. 1905 with John M. Farley in charge of party on surveys and sub-divisions around White Plains, N. Y., and all office work for same; July 1906-Nov. 1908 with Oregon Short Line R. R. on general office work and drafting, laying out steel work for Salt Lake depot and asst. engr. in charge of re-survey of Nevada & California R. R.; Nov. 1908-Feb. 1912 with the Twin Falls North Side Land & Water Co. of Milner, Idaho, designing wooden and masonry structures for canal system, residence engr. on special investigations, extensions and repair of irrigation canals, designing concrete and steel structure for storage dam; resident engr. on 15 miles of the Idaho Southern R. R.; March-Dec. 1912 with James A. Bancroft, Reading, as managing engr.; Jan. 1913 to date in private business as civil engineer, Reading. Refers to R. C. Allen, L. M. Bancroft, H. K. Barrows, C. B. Breed and C. B. Humphrey.

Gibson, Frederick M., Boston, Mass. (Age 36, b. Dover, N. J.) Graduate of Stevens Institute of Technology, 1901. From June 1901 to Nov. 1903 with Cambria Steel Co., Johnstown, Pa., as an assistant in Chief Engineer's Office; Jan. 1904 to Nov. 1905 with San Carlis Copper Co., San Jose, Tam., Mexico, in charge of power house, compressors and

drills, also assistant in construction work; Nov. 1905 to May 1910 with American Sugar Refining Co., Jersey City, N. J., as foreman engineer; May 1910 to present time in Boston Office of same company as chief engineer. Refers to M. F. Brown, Richard Hutchinson, J. C. Moses, and W. H. Sawyer.

Moulton, Larenzo Gordon, Roxbury, Mass. (Age 65, b. Beverly, Mass.) From 1880 to present time with G. W. & F. Smith, Smith Casleton Co., Boston Steel & Iron Co., and the Smith Iron Co., as working engineer, in charge, structural engineer and estimator. Refers to J. V. Beekman, Jr., G. H. Brazer, F. H. Fay, A. W. Parker, and J. R. Worcester.

Reynolds, Charles Vaughn, Canton, Mass. (Age 22, b. Canton, Mass.) Graduate of Mass. Inst. of Technology, 1912. Summer of 1911 worked in the Sewer Division, City of Boston. From May 1912 to present time with the Boston Transit Commission as inspector on the Boylston Street Subway. Refers to E. S. Davis, F. C. H. Eichorn, J. T. Frame, and L. B. Manley.

Stevens, George M., Winthrop, Mass. (Age 38, b. Boston, Mass.) Two years with Boston Transit Commission, ten years with Street Dept. of Boston as assistant engineer. At present with Mack Mfg. Co., and Barber Asphalt Co., as sales manager in New England. Refers to Joshua Atwood, 3rd, B. F. Bates, F. H. Fay, J. H. Sullivan, L. K. Rourke, and S. E. Tinkham.

Shepherd, Frank Cummings, Boston, Mass. (Age 43, b. Gloucester, Mass.) Graduate of Mass. Inst. of Technology, 1892. From 1892-1895 with Metropolitan Sewerage Commission of Mass. as transitman; 1895-1898 with Boston Transit Commission, as assistant engineer; 1898 with Boston Sewer Dept. as assitant engineer; 1898-1900 with Dept. Yards & Docks, Navy Yard, Portsmouth, N. H.; 1900 with Boston Street Watering Dept. as chief engineer, 1901 with Boston Street Cleaning Dept. as deputy supt.; 1902-1905 with Grand Central Yard Improvements, N. Y. City, as resident engineer; 1905-1907, Engr. and Supt., O'Rourke Engineering Construction Co., N. Y. City, as engineer; 1907 with Canadian White Co., Montreal, as general supt.; 1908-1910 with J. G. White & Co., N. Y. City, as construction supt.; 1911 with James Stewart & Co., as supt; 1912 with B. & M. R. R. as engineer of construction. Refers to Joshua Atwood, 3rd, C. B. Breed, A. B. Corthell, A. W. Dean, C. R. Gow, and J. W. Rollins.

Temple, George Frederick, Woburn, Mass. (Age 41, b. Wakefield, Mass.) Educated in the public schools of Wakefield and Reading. In 1894 entered the office of Wait and Cutter, architects, Boston, and remained with them, and Edward T. P. Graham, Boston, until the present time as an architectural and structural engineer. Refers to C. H. Dutton, H. W. Fitts, J. B. Graham, E. A. Norwood, E. E. Pettee, E. H. Rockwell, and E. A. Tucker.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

Position Available

08. A draftsman or a man capable of taking charge of outside road construction, pipe laying, etc. Salary $1,000 per year. Apply to Supt., Mt. Auburn Cemetery.

Men Available

153. Age 23. Attended Dartmouth College and Thayer School of Engineering. Has had experience as compassman in charge of party making timber surveys, general surveying work and inspecting gravel roads. Desires position as surveyor, draftsman or inspector. Salary desired $85 per month.

154. Age 24. Graduate of Dartmouth College, and now in Thayer School of Civil Engineering, class of 1913. During the past eight summers has had experience in various branches of engineering. Desires position in reinforced concrete work. Salary desired $75 per month.

155. Age 23. Dartmouth College, 1912, and now in Thayer School of Civil Engineering, class of 1913. Two summers' field practice and surveying, topographical, plane, railroad, and town surveys. Desires position in hydraulic or concrete construction work. Salary desired $75 per month.

156. Age 19. Has had experience in surveys of railway surface lines and forest work. Desires outdoor work, preferably in the West.

157. Age 23. Attended Dartmouth College. Has had three summers' experience in surveying work. Desires position as transit or levelman. Salary desired $70 per month.

158. Age 45. Has had six years' experience in the field and

nine years as superintendent for firm of landscape engineers, understands planting, sewer construction and drainage, and has made a specialty of road building. Desires situation with a landscape designing or contracting firm.

158. Age 29. Three years at Mass. Inst. of Technology. Has had seven years' experience in general surveys for park work, reinforced concrete construction, sewer construction and highway work. Desires position as draftsman or transitman. Salary desired $75 per month.

148. Age 29. Three years at Mass. Inst. of Technology. About two years' experience as designer and draftsman for all kinds of steel towers and trestles for supporting water tanks, also in structural steel work and miscellaneous drafting. Deires position as designer or draftsman on structural steel, checker or detailer. Salary desired $100 per month.

150. Age 22. High school graduate and two years in the Franklin Union studying structures. Has had three years' experience drafting in a ship yard. Desires position as draftsman in structural engineer's office.

151. Age 28. Graduate of Tufts College, 1907, department of engineering, specializing in structural work. About one year's experience in structural detailing and checking. Desires position for that class of work. Salary desired $100 per month.

152. Age 23. One year at Mass. Inst. of Technology. About four years' experience in municipal work and electric railway surveys. Desires position in field or office work in any of the above classes of work. Location immaterial. Salary depending on nature of work, but a small factor at the start.

LIBRARY NOTES

Book Reviews

The Stock Exchange from Within. By Wm. C. Van Antwerp. Pp. 459. $1.50 net. New York: Doubleday, Page & Co. (Given to the Society Library for review.)

Almost at the outset this book demonstrates its usefulness by stating the reason for a stock exchange. "Buyers seek the

largest market they can get in order to obtain the lowest prices, sellers in order to obtain the highest prices; and so it was learned long ago that economy of time and labor, as well as a theoretically perfect market, could be best secured by an organization under one roof of as many dealers in a commodity as could be found." P. 6.

As the title states, the book is a plea from a member for the value of the stock exchange. An excellent elucidation of the various causes of panics is given in this volume.

The chapters on the London Stock Exchange and the Paris Bourse are illuminating. The report of Gov. Hughes' commission on speculation in securities and commodities is given in full in the appendix.

This book is of considerable value to the general reader, is excellent typographically, and is sold at a reasonable price.

Reviewed by Frederic I. Winslow.

Recent Additions to the Library

U. S. Government Reports

Bibliography of North American Geology, 1911. John M. Nickles.

Bonnifield Region, Alaska. Stephen R. Capps.

Data of Geochemistry. Frank W. Clarke.

Exploration of Salines in Silver Peak Marsh, Nevada. R. B. Dole.

Gold, Silver, Copper, Lead and Zinc in Western States and Alaska in 1911. A. H. Brooks and others.

Index to Stratigraphy of North American, with Geologic Map. Bailey Willis.

Isthmian Canal Commission. Official Handbook of Panama Canal, 1913.

Mineral Fuels. Marius R. Campbell.

Mineral Products of the U. S., 1910-1911. Edward W. Parker.

Phosphates in Idaho and Montana. A. R. Schultz and others.

Pliocene and Pleistocene Foraminifera from Southern California. Rufus M. Bagg, Jr.

Production of Gold and Silver, 1911. H. D. McCaskey.

Production of Mines and Metallic Ores, 1910-11. H. D. McCaskey.

Water Supply Papers. Nos. 281, 290, 299, 304.

State Reports

Pennsylvania. Report of Water Supply Commission on Pymatuning Swamp, with Plates.

City and Town Reports

Chicago, Ill. Bureau of Public Efficiency.

Growing Cost of Elections in Chicago and Cook County.

Office of Sheriff of Cook County.

Office of Clerk of County Court, Cook County.

Office of Clerk of Circuit Court and Clerk of Superior Courts, Cook County.

Voting Machine Contract.

Detroit, Mich. Annual Report of Water Commissioners for 1912.

Fall River, Mass. Annual Report of City Engineer for 1911.

Fall River, Mass. Annual Report of Watuppa Water Board for 1912.

Northampton, Mass. Annual Report of Water Commissioners for 1912.

Reading, Mass. Annual Report of Water Commissioners for 1912.

Miscellaneous

American Water Works Association. Proceedings for 1911 and 1912.

Atlas of the World. George F. Cram.

Essentials of Electricity. W. H. Timbie.

Glasgow Iron Co., Pottstown, Penn. Catalogue for 1912.

International Association of Navigation Congresses. Bibliographic Notes: Rivers, Canals and Ports.

Modern Methods of Street Cleaning. George A. Soper.

Report of Board of Arbitration in Controversy between Eastern Railroads and Locomotive Engineers.

Specifications for Street Roadway Pavements. S. Whinery.

The Stock Exchange from Within. William C. Van Antwerp.

FREDERIC I. WINSLOW, *Librarian.*

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DEATHS

CHEEVER, ALBERT S. .....Died February 17, 1913

BINDING THE JOURNALS

Members who wish the Secretary to attend to the binding of their numbers of the *Journal* are requested to send them to Room 715, Tremont Temple, Boston, before April 1st.

Arrangements have been made by which members can have

the *two* volumes for any year bound in *one* for 70 *cents*, or each volume bound separately for 50 *cents;* the style of binding to be the same and uniform with that of former years. Mark clearly which way it is desired the binding should be done.

NEW ENGINEERING WORK

(Under this head the Excursion Committee presents a brief description of new engineering work contemplated or under construction. Engineers and contractors are requested to send descriptions of their work to the Secretary of the Excursion Committee, 715 Tremont Temple, Boston, before the first of each month.)

United States Government.—The following items are included in the Naval Appropriation bill as reported to the House of Representatives: —

NAVAL MAGAZINE, HINGHAM, MASS.	
Magazine for smokeless powder, with R.R. approach and extended fire main	$17,555.00
Railroad track to filling house	1,890.00
One detonator house	1,250.00
One gun cotton house	1,500.00
One filling house	1,500.00
Total	$22,445.00
NAVY YARD, BOSTON, MASS.	
Paving, to continue	15,000.00
Electrical system extension	5,000.00
Railroad system, extension and equipment	10,000.00
Fireproofing of pattern shop	22,000.00
Remodeling building No. 40	12,000.00
Remodeling building No. 77 for boat storage	15,000.00
Power plant improvements	3,900.00
Dredging, to continue	10,000.00
Sewers and drains	3,600.00
Moving boiler shop from building 40 to building 106, including necessary modifications in buildings	25,000.00
Additional oil storage	5,000.00
Extension to yard dispensary	2,800.00
Marine Barracks and quarters	148,000.00
Total	$277,300.00

Commonwealth of Massachusetts.—Metropolitan Park Commission.—*Charles River Reservation.*—Work of construction of Anderson Bridge is in progress.

Directors of the Port of Boston.—Commonwealth Pier No. 5.—Construction work continues on the easterly portion of this pier, which includes the work to be done on the freight shed on the easterly side and that to be done in the central or passenger shed.

The concrete footings for the support of the columns of the portions of the sheds, to be completed in May, have all been placed and work is now progressing on the reinforced concrete platform on the easterly side and in the erection of the steel superstructures.

The dredging of the docks and approaches to the main ship channel has been completed.

Miscellaneous.—The making of diamond drill borings on the proposed site for the dry dock which is just easterly of the filled portion of the South Boston flats has been begun.

Studies are being made for the waterfront development of South Boston and East Boston.

City of Boston.— Public Works Department, Sewer and Water Division.—*Sewer Service.*—Union Park Street at Shawmut Avenue, South End.

Sewers on piles draining fish pier and Commonwealth Pier on Summer Street Extension between Summer St. and Northern Ave.

Two sections on Northern Avenue.

Underground pumping station started at Summer Street Extension and E Street, South Boston.

Boston Transit Commission.—The portion of the Boylston-street Subway extending from Kenmore Street near the junction of Massachusetts Avenue and Beacon Street to near the Public Library Building, comprising contract Sections 1, 2, and 3, is substantially completed, excepting the station near Massachusetts Avenue, which station is a part of Section 2. On Section 4 the northerly sidewall is constructed between a point 80 feet east of Berkeley Street and Copley Square. Ex-

cavation for the south wall between the same points is in progress. As a temporary substitute for the 42-inch high service pipe crossing through the subway location at the corner of Berkeley and Clarendon Streets, a line of 24-inch and 36-inch pipe has been laid through Dartmouth and Newbury Streets from Huntington Avenue to Clarendon Street. The Hugh Nawn Contracting Co. is the contractor for the four contract sections.

Section A of the Dorchester Tunnel, in Winter Street, is approaching completion. The work is being continued, crossing under the Washington-street Tunnel and under the Summer-street lobby. The Coughlan & Sheils Co. is the contractor.

On the extension of the East Boston Tunnel the construction of a part of the section under and near the present station in Scollay Square between Brattle Street and Howard Street is in progress. The easterly sidewall is being built in Court Street near Sudbury Street. The building 87-89 Court Street is being underpinned. Isaac Blair & Co. are the contractors.

New York, New Haven & Hartford Railroad.—General construction work in progress at Clinton, Mass., in connection with the elimination of grade crossings which includes the elevation of the New Haven Railroad and the depression of the Boston & Maine; also building of a new freight yard and freight house.

Quincy, Mass.— The Fore River Shipbuilding Co. has the following new work in progress: —

Battleship RIVADAVIA for the Argentine Navy.

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Nine Submarines for U. S. Navy.

Oil Steamer RICHMOND for the Standard Oil Co.

Four steel carfloats for the N. Y., N. H. & H. R. R. Co.

Fish Trawlers WAVE, BILLOW and BREAKER for the Bay State Fishing Co.

Cambridge, Mass. —Aberthaw Construction is just starting excavation for the factory owned by Gray & Davis Co., located on the Parkway near the Cottage Farm Bridge on the Cambridge side of the Charles River. The building will be five stories high of reinforced concrete construction and will be carried through quickly.

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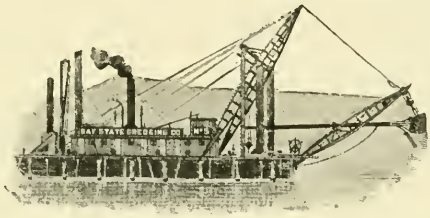

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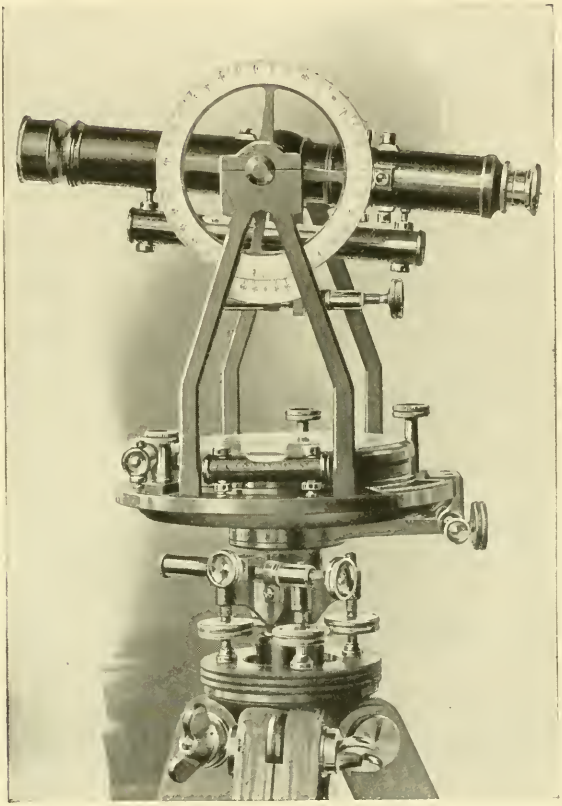

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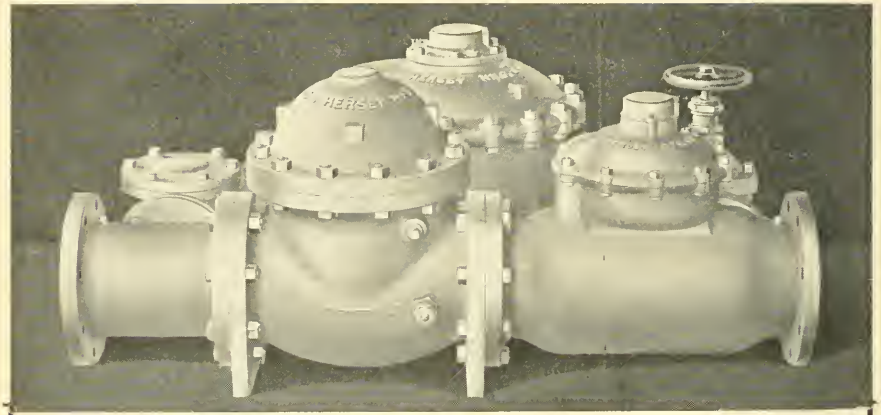

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BOSTON SOCIETY OF CIVIL ENGINEERS
ORGANIZED JULY 3, 1848

MONTHLY BULLETIN.

NEW SERIES. APRIL, 1913 No. 71

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, April 16, 1913, at 7.30 P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Mr. James H. Sullivan will read a paper on City Pavements, Mr. Alexis H. French will give an account of the Brick Pavement laid in Brookline, and Mr. Lewis M. Hastings will speak of the pavement laid in Cambridge.

S. E. TINKHAM, *Secretary.*

JOINT MEETING OF ENGINEERS, APRIL 25, 1913

A joint meeting of the Boston Society of Civil Engineers, the American Society of Mechanical Engineers and the Boston Section of the American Institute of Electrical Engineers, conducted by the latter Society, will be held on Friday evening, April 25, 1913, at the Lowell Building, corner of Clarendon and Stanhope Streets, Boston, at half-past seven o'clock.

Subject for discussion will be:—"Delivery and Handling of Freight at the Boston Freight Terminals." Dr. Harold Pender, Mr. H. F. Thomson, Mr. C. P. Eldred of the Mass. Institute of Technology, and others will take part.

APPLICATIONS FOR MEMBERSHIP

[April 9, 1913]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the

eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Alexander, Edward Porter, Duluth, Minn. (Age 22, b. Duluth, Minn.) Student, Mass. Inst. of Technology, Junior class. Refers to C. F. Allen, C. B. Breed, A. E. Burton, and A. G. Robbins.

Allen, Lawrence Howe, Quincy, Mass. (Age 26, b. Hartford, Conn.) Graduated from Mass. Inst. of Technology, Civil Engineering, 1908. From Dec. 1908 to June 1909 with Johnstown & Gallitzin Ry., Johnstown, Pa., as rodman; June 1909, to date, maintenance of way office as transitman for the N. Y., N. H. & H. R. R., Boston-Midland Division. Elected a junior Dec. 21, 1910, and now desires to be transferred to grade of Member. Refers to C. F. Allen, C. B. Breed, H. W. French, G. T. Sampson, E. C. Sargent, and F. E. Tupper.

Baker, Frank Adams, Boston, Mass. (Age 26, b. Boston, Mass.) Graduate of Mass. Inst. of Technology, 1910. Six months of 1910-1911 with Dr. H. V. Hayes, Boston, on telephone inventory work; 1911-1913 (two and one half years) with Sanford E. Thompson, Newton Highlands, on concrete work and scientific management. At present with S. E. Thompson, working on scientific management. Refers to E. F. Allbright, H. L. Coburn, R. E. Rice, M. W. Rew, and S. E. Thompson.

Beola, Pablo, Boston Mass. (Age 22, b. Gibara, Cuba.) Studying Civil Engineering in the Mass. Inst. of Technology, being a member of the junior class. Refers to C. F. Allen, C. B. Breed, W. H. Coburn, and A. G. Robbins.

Dorsey, Thomas Francis, Boston, Mass. (Age 29, b. Roxbury, Mass.) Graduate of Mass. Inst. of Technology, Civil Engineering, 1907. From Dec. 1906 to Sept. 1910 with Mass. Harbor and Land Comm., on Town Boundary Surveys as rodman; 10 months with Boston Transit Comm., as draftsman and instrumentman; 5 months with E. A. W. Ham-

matt as instrumentman; 18 months with Charles River Basin Comm., as draftsman; Sept. 1910 to Feb. 1913 with the City of Pittsfield as draftsman, chief of party, and asst. engr.; March 1913 and at the present time with the Port Directors of Boston as draftsman. Refers to E. S. Davis, J. N. Ferguson, E. A. W. Hammatt, J. L. Howard, H. A. Miller, and H. B. Wood.

Jerome, Frank Jay, Painesville, Ohio. (Age 23, b. Painesville, Ohio.) Graduate of Williams College with A. B. degree, 1911. At present, a junior in the civil engineering course at Mass. Inst. of Technology. Refers to C. F. Allen, C. B. Breed, A. E. Burton, and A. G. Robbins.

Tobin, James Joseph, Boston, Mass. (Age 27, b. Boston, Mass.) Graduate of Harvard, Class '09 S. B. Metallurgy. From 1907 to Feb. 1908 with Boston Transit Comm., as rodman and inspector; Feb. 1908 to fall of 1908 with Porto Rican Irrigation Service, as transitman; Summer of 1909 with U. S. War Dept. Engineers, Provincetown, as transitman; Summer of 1910 with Lackawanna Steel Co., Buffalo, N. Y., as inspector and metallurgist; Sept. 1910 to Sept. 1911 with Boston Transit Comm., as inspector; Sept. 1911 to July 1912 with Mass. Highway Comm., as transitman; July 1912 to Sept. 1912 with United Fruit Co., Guatemala, C. A., as asst. engineer; Sept. 1912 to date with Mass. Highway Comm., as resident engineer. Elected a junior May 17, 1911 and now desires to be transferred to grade of Member. Refers to A. W. Dean, E. R. Hyde, A. M. Lovis, F. H. Morris, and G. P. Soutar.

Wentworth, John Prescott, Malden, Mass. (Age 26, b. Malden, Mass.) Graduate of Mass. Inst. of Technology, 1910. From June 1910 to June 1911 assistant at Mass. Inst. of Technology; June 1911 to date with Metcalf and Eddy, as assistant. Elected a junior, Jan. 24, 1912, and now desires to be transferred to grade of Member. Refers to H. K. Barrows, H. P. Eddy, F. A. Marston, Leonard Metcalf, Dwight Porter, and C. M. Spofford.

Williams, W. Quintin, St. Marc, Rep. of Haiti. (Age 31, b. Jamaica, B. W. I.) Two years of technical training at Bristol University, Eng. From 1900 to 1906 with Engineer's Dept. Public Works, Jamaica, B. W. I., as general foreman, clerk of works, and asst. to engineer on surveying, constructing roads, bridges, sewers, reservoirs, municipal buildings, etc.; 1908 to 1909 with T. J. Moss-Flower on surveying and sanitary works, Bath, Eng. From 1909 to 1911 asst. engineer, Buenos Aires Western Railway, on construction of roadway, bridges, station buildings, etc.; surveys, plans, and report of electric lighting towns of Jeremie and Aut Cages, Rep. of Haiti; reconstruction of street and quays, Port au Prince, Haiti. From 1911 to 1912, with Caribbean Construction Co. as levelman, and topographer; and at the present time with same company as resident engineer. Refers to W. J. Fielding, and is recommended by W. S. Johnson, C. W. Sherman and S. E. Tinkham of the Board of Government.

Boston Society of Civil Engineers.

MINUTES OF MEETING.

Boston, Mass., March 19, 1913. — The sixty-fifth annual meeting of the Boston Society of Civil Engineers was held at the Boston City Club, 9 Beacon Street, Boston, at 12.30 o'clock P.M., President James W. Rollins in the chair.

The record of the last meeting was read and approved.

The Secretary reported for the Board of Government that the following candidates had been elected to membership in the grades named:

Members — Walter W. Clifford and Samuel P. Waldron.

Juniors — Walter A. Ford, Frank W. Johnson, Laurence K. Marshall, William J. Power, Jr., and Leslie P. Reed.

By a unanimous vote the following amendment to the By-Laws, passed at the last meeting, was again passed, as required by the By-Laws: Amend by-law 7 by adding at the end of the second paragraph the following words: "Applicants who may be so situated as not to be personally known to four members may be recommended by three members of the Board of Government."

The Secretary read the annual report of the Board of Government, and by vote it was accepted and placed on file.

The Treasurer read his annual report, and by vote it was accepted and placed on file.

The Secretary read his annual report, and by vote it was also accepted and placed on file.

Mr. Charles R. Gow, for the Committee on Excursions, read the annual report of that committee, which was accepted and placed on file.

The recommendation of the committee, "That the practice of maintaining a permanent excursion committee be abolished, and that the duties previously assigned to such a committee be delegated to the Board of Government, to be exercised at its discretion," was referred to the Board of Government with full powers.

The Librarian read the annual report of the Committee on the Library, and by vote it was accepted and placed on file. The recommendation made by the committee in relation to an appropriation for the purchase of current engineering books was by vote referred to the Board of Government with full powers.

On motion duly made and seconded, it was voted to refer to the Board of Government the question of appointing the special committees of the Society, with full power to act.

Mr. Desmond FitzGerald, the committee appointed to prepare memoir of our late associate Francis Blake, read his report, which was accepted.

The tellers of election, appointed by the President, Messrs. N. S. Brock and J. L. Howard, submitted their report giving the result of the letter ballot.

In accordance with this report the President announced that the following officers had been elected:

President — Frederic H. Fay.
Vice-President (for two years) — Charles R. Gow.
Secretary — S. Everett Tinkham.
Treasurer — Charles W. Sherman.
Directors (for two years) — Charles B. Breed and John N. Ferguson.

The President then presented, in the name of the Society, the Desmond FitzGerald Medal for the year 1912 to Charles Thomas Main, for his paper entitled, "The Work, Aim and Conduct of the Engineer." Mr. Main in accepting the medal expressed his deep appreciation of the honor conferred upon him in the award of the medal. He also referred to the suggestion made in the paper which had brought him this medal, and which had resulted in this Society adopting a code of ethics, which code is substantially the same as adopted later by several of the national engineering societies.

On motion of Mr. Worcester, it was voted to print one thousand copies of the Code of Ethics adopted by the Society December 18, 1912.

The retiring President, Mr. James W. Rollins, then delivered the following address:

The year past of our Society has shown a most satisfactory progress in all ways. Our membership in all classes is to-day 823, the average attendance at our meetings has been 175, both of which figures exceed all previous records; while from a financial standpoint (our balance for the year being over $600) the results are most satisfactory; the above figures all showing a reasonable growth in strength, also an increasing interest in our work and meetings.

The meetings during the year have been in a way unusual, in that very few strictly technical papers have been presented; and it is an open question whether this fact is not responsible for the increased attendance. And this again brings up the question as to the advisability of presenting (if you are fortunate enough to find a member to prepare) technical papers to be *read* at the meetings; or whether it would be better to have these papers printed and distributed to members, and have discussions only. The experience of the American Society on this matter favors the latter course, and we look forward to the time when we can print our own papers, discuss them in open meetings, and finally have all printed and bound for reference.

We have had several distinguished guests during the year, — Colonel Goethals, chief engineer of the Panama Canal Commission; the foreign representatives to the Navigation Congress; Colonel Cooper, chief engineer of the Mississippi Power Company; and Mr. George A. Harwood, chief engineer of the Electric Zone Improvements and Grand Central Station work for the New York Central Railroad in New York. To hear of and see on the screen the works done by these men was most instructive, interesting and broadening and should make us realize that all the great things are not done in Boston or by members of our Society.

For many years we have been working, and, according to our worthy Secretary, scrimping, to provide new quarters for our Society. We have had several joint meetings with other engineering societies, to get up enthusiasm on the question of an engineers' club. The first proposition advanced was too

ambitious, and was abandoned. Last year a new scheme was developed and ended in the incorporation of the Engineers Club, largely by members of our Society, the leasing of a site and construction of a clubhouse on Commonwealth Avenue and Arlington Street. Our Society, deeming the accommodations inadequate for our needs, declined the invitation to lease quarters in this clubhouse. On account of the great interest in this club, the house being opened with a waiting list of one hundred, it was probably a wise move on the part of the Boston Society to remain in its old quarters, enlarged and refitted and made more attractive, to better accommodate our growing needs.

It is reported that since making these improvements the attendance of members is steadily growing, and the experiment of encroaching on the precious Permanent Fund for the necessities of life will be entirely justified.

This element of comradeship and sociability is again proven "good," after having been started by our entertaining and not technical meetings of the year. The speaker is of the opinion that most men like to get together socially, to talk shop a little, to hear of the other fellow's troubles and woes, to see pictures of new and great works, and to hear them described; and to leave uninteresting though most valuable technical matters to be presented, — read over and studied at leisure or filed away for future reference.

It is a self-evident fact to-day that what is needed most in all walks of life, except possibly in law, is *coöperation*, — getting together men with men, discussing issues fairly and honestly, coming to a decision that is just to all, and then going ahead and "doing things."

It is easy to tear down any structure, to find fault with corporations, individuals or public officials, but these would-be destroyers and critics seldom offer any solutions to the problems that great men struggle with.

Any organization which brings together men of different stations in life, different interests, education, even of different religion and politics, helps to solve this question of "how to get together."

The Engineers Club is a good example of this, having in its membership not only engineers of all kinds, but all kinds of men who work with engineers or hope some day to work with them, — engineers, railway managers, lawyers, bankers and merchants, — all recognizing the worth of engineering, — getting together, learning to know each other, and each other's works and aims in life. It's all in the "view-point," and the great thing to do is to try to see the point from which the other fellow looks at our problems.

Great things are done by coöperation between engineers and contractors, and most successfully and happily when each can see the other man's point of view.

The great success of the work at Panama is due to the coöperation and loyalty of all the men on that work, from the Jamaica negroes to the engineering force. Each one of these men, inspired by the worth and work of their leader, Colonel Goethals, thinks the success of the work is due to his own efforts, and the result has been the greatest efficiency work of the century.

The Catskill Aqueduct work in New York has also been another great example. Although some contractors have lost money, not one complains of the engineering force, and that force swear by their leaders and their chief, and they have together accomplished a work with great difficulties, but with no failures and few delays.

The United States Government tried for five years to build a dry dock

in Brooklyn at an expense of half a million dollars and the failure of two contractors.

Having war ships nearly finished but with no dry dock in the country large enough to dock them, they cut loose from the usual Government "red tape," asked privately for bids based on contractors' own plans as to method of doing the work, and awarded the contract to the lowest bidder.

The engineers and contractors joined their forces and energies, worked together in entire harmony and for one end to complete the work. Problems new and problems difficult were worked out together, and all with the result that the dock was completed eight months ahead of contract time, and with a reasonable profit to the contractor.

Under usual Government conditions and exactions, and with the usual red tape, this work would without much doubt have gone into the history of previous dry docks, — failure or great loss to contractors; the dock completed months or years behind time.

About the same time, another dock was being rebuilt under usual Government conditions, engineers and red tape. There was no coöperation, the engineer insisted on every minor detail of specification; and the result was the old story, — a suit against the Government which will result in the payment of thousands of dollars to the contractor, all because of the lack of ability to coöperate.

Every year there is held in New York a contractors' dinner, and naturally it is a *real dinner*. Gathered about the tables as hosts are all the leading contractors of that great city; men, most of them engineers, having in hand contracts amounting to hundreds of millions of dollars. As their guests, are the leading engineers of New York, men who have planned and have in charge the execution of these great undertakings; also often some of the leading officials of the city.

It is a great pleasure for an outsider to be at this dinner — for the dinner is a good one — the Catskill Aqueduct's product not greatly in evidence; but the spirit of good fellowship which prevails between these contractors and engineers, who to-day are doing the greatest engineering works the world ever saw, shows that both sides are getting together, and makes true again the old proverb, that "in union there is strength"; and that, working together, the engineers and contractors of to-day can "make good" on any of the great construction problems of our modern civilization.

So we members of the Boston Society, if we are to do the work society expects of us, if we are to grow stronger as the years go by, must work together, learn to know each other better, make our meetings attractive, particularly to the young men, for some of us are gray and *bald-headed;* each year our ranks grow thinner, and the young men of to-day are to be the leaders of tomorrow.

Let us keep true the traditions of our great profession, but once in a while let us forget that we are *engineers*, and simply be men together, working out one with another some of the great problems of life of which we each must bear a share.

The President then introduced the President-elect, Mr. Frederic H. Fay, who said in part:

Sixty-five years ago, on the 15th of June, a small group of engineers met in Boston, organized the first society of engineers on the American continent and named the organization the Boston Society of Civil Engineers. Three years later, on April 24, 1851, the Society was incorporated by an act of the legislature. This was at a time when engineering as a profession was struggling to game a toothold in this country, and among the early members of the Society were men who rose to national prominence in the profession.

Throughout its existence the Society has numbered in its ranks engineers of the highest standing, as has been fitting for the senior engineering society in America, and in looking over our membership list we find the names of seven past and present members who have held the office of president of the American Society of Civil Engineers, as well as others who have presided over the American Society of Mechanical Engineers, the American Institute of Electrical Engineers and the American Institute of Mining Engineers. This is indicative not only of the quality of our membership, but also of the breadth of the Society. Our members are by no means confined to the field of civil engineering, in the modern narrow sense, but they come from all branches of the engineering profession, and perhaps it were more fitting if we were known as the Boston Society of Engineers.

But even the word " Boston " is of too limited application, for our 823 members are to be found, not alone in Boston or New England, but scattered all over the United States as well as in Canada, Central and South America, the West Indies, our American insular possessions and even as far away as South Africa.

Boston, more than any other center of the country, has been a producer of engineers — of men who have given, and are giving, good account of themselves in distant fields as well as at home.

To my mind, one of the reasons why so many capable engineers have grown up hereabouts is that our Society has been the means of bringing its younger members in contact with those older and more prominent in the profession; and that the latter have loyally supported the Society and given the younger men the benefit of their experience and advice. This feature has been accountable for much of the success of the Society in its sixty-five years of honorable existence, and it should become a still more important factor in the future. We need the counsel and friendly criticism of our older members, the men of wide experience. At the same time, we should have still more support from the younger men in carrying on the active work of the Society. With this coöperation, the Society will grow in strength and power and influence.

For myself I wish to express to you my deep appreciation of the honor of election to the presidency of the Society, and it is indeed a great honor to preside over the affairs of this, the senior of all the engineering societies of the country. When I think of the long list of distinguished engineers who have preceded me, consider the responsibilities of the office, and remember that a presidential address is to be prepared for delivery next March, I realize that the man who assumes the duties of president is undertaking no small contract.

However, I know that I may speak for the newly elected officers, and for those holding over, and assure you that during the coming year the Board of Government will use its best efforts to advance the interests and promote the welfare of the Society.

The members then adjourned to the auditorium of the City Club, where members and guests to the number of 145 sat down to the thirty-first annual dinner

After the dinner, Mr. J. Waldo Smith, chief engineer Board of Water Supply of New York gave a very interesting illustrated talk entitled, "Some Features of the Contracts Specifications and Construction of the Catskill Water Supply for the City of New York."

In the evening a "Smoker" was held in the auditorium of the City Club, at which the attendance was about 250.

The gathering was of the same informal character as in former years, and in addition to music by an orchestra and songs by our members, we were favored by Mr. Albert H. Houghton, of Boston, with several songs finely rendered. Mr. William A. Murphy, of Boston, was also present and gave an address which was replete with good advice and witty stories.

S. E. Tinkham, *Secretary.*

Annual Report of the Board of Government for the Year 1912–13.

Boston, Mass., March 19, 1913.

To the Members of the Boston Society of Civil Engineers:

In compliance with the requirements of the Constitution, the Board of Government submits its report for the year ending March 19, 1913.

At the last annual meeting the total membership of the Society was 806, of whom 742 were members of the Society, 21 juniors, 2 honorary members, 24 associates and 17 were members of the Sanitary Section only.

During the year the Society has lost a total of 41 members, 23 by resignation, 9 by forfeiture for non-payment of dues, and 9 have died.

There has been added to the Society during the year a total of 58 members of all grades; 57 have been elected and 1 reinstated.

The present membership of the Society consists of 2 honorary members, 754 members, 28 juniors, 23 associates and 16 members of the Sanitary Section only, making a total membership of 823, a net gain of 17.

The record of the deaths during the year is —

George I. Leland, died May 16, 1912.
J. Edwin Jones, died June 3, 1912.
Robert Leland Read, died June 5, 1912.
Charles R. Cutter, died July 30, 1912.
Theodore O. Barnard, died October 20, 1912.
George Albert Kimball, died December 3, 1912.
Charles A. Allen, died December 9, 1912.
Francis Blake, died January 19, 1913.
Albert S. Cheever, died February 17, 1913.

Ten regular meetings and one special meeting have been held during the year. The average attendance at the meetings was 175, as against 155 last year, the largest being 425 and the smallest 65.

The following papers and talks have been given at the meetings:

March 20, 1912. — Charles T. Main, "The Work, Aim and Conduct of the Engineer." John R. Freeman, "Water Supply of the City of Mexico." (Illustrated.)

May 10, 1912 (special students' meeting). — Leonard Metcalf, "Some Recent Developments in Sewage Purification Methods." (Illustrated.)

May 15, 1912. — Arthur W. Dean, "The Construction and Maintenance of State Roads in Massachusetts." Hugh L. Cooper, "Damming the Mississippi." (Illustrated.)

June 20, 1912. — Col. George W. Goethals, "Panama Canal." (Illustrated.)

September 18, 1912. — Clarence T. Fernald, "Notes on the Construction of the Charles River Bridge for the Boston Elevated Railway Company." (Illustrated.)

October 16, 1912 (joint meeting with the American Society of Mechanical Engineers and the American Institute of Electrical Engineers). — Hugh L. Cooper, "Description of the Water Power Development of the Mississippi River Power Company at Keokuk, Iowa." (Illustrated.) D. L. Galusha, "Description of the Main Electrical Features of the Plant at Keokuk, Iowa." (Illustrated.)

November 20, 1912. — Frank W. Hodgdon, "Some Incidents of Survey of Mountains Near the Boundary between Costa Rica and Panama." (Illustrated.)

December 18, 1912. — George A. Harwood, "The Construction of the New Grand Central Terminal for the New York Central & Hudson River Railroad Company." (Illustrated.)

January 22, 1913 (joint meeting with the American Society of Mechanical Engineers and the American Institute of Electrical Engineers). — William H. Lewis, "Hydraulics in City Building." (Illustrated.)

February 19, 1913. — Prof. Lewis E. Moore, "Small Bascule Highway Draw Span." Frederic H. Fay, "Some Notes on Highway Bridge Floors." Prof. Charles M. Spofford, "An Account of Some Early Experiments upon Reinforced Concrete." Joseph R. Worcester, "Initial Stress in Steel Section." (Illustrated.)

The Sanitary Section of the Society has had six meetings during the year, with an average attendance of fifty. The following subjects have been discussed at the meetings of the Section:

March 6, 1912. — Leonard Metcalf, "Some Sewage Disposal Plants in Germany."

November 27, 1912. — Langdon Pearse, "The Sanitary Work of the Sanitary District of Chicago."

December 4, 1912. — Dr. Rudolph Hering, "Refuse Disposal."

January 8, 1913. — Prof. R. C. Carpenter, "Ventilation."

February 5, 1913. — Glen D. Holmes, "The Intercepting Sewer and River Improvements at Syracuse, N. Y." William F. Williams, "The New Bedford, Mass., Intercepting and Outfall Sewer." David A. Hartwell, "The Fitchburg, Mass., Intercepting Sewer."

The Board of Government has adopted the recommendation of the committee appointed to award the Desmond FitzGerald Medal, and is pleased to announce that it will be given this year for the paper entitled, "The Work, Aim and Conduct of the Engineer," by Charles T. Main.

On May 10, 1912, the students in the Civil Engineering Courses at Harvard, Tufts and the Institute of Technology were for the second time the guests of the Society at a special meeting held at the Boston City Club. Mr.

Leonard Metcalf gave an illustrated talk on "Some Recent Developments in Sewage Purification Methods." The attendance was about 275.

The holding of joint meetings with the members of the American Society of Mechanical Engineers and of the Boston Section of the American Institute of Electrical Engineers was continued the past year. The Mechanical Engineers conducted the literary exercises at the close of our regular October meeting, and at our regular meeting in January the Mechanical and Electrical Engineers met with us.

The Society took advantage of the presence in Boston of the delegates and members of the Twelfth International Congress of Navigation and tendered them a reception, which was held in the banquet hall of the Boston City Club on the evening of June 6, 1912, at six o'clock. The occasion afforded the members of the Society an opportunity to meet these distinguished foreign engineers and to extend to them a cordial welcome. As only an hour was allowed for this function, it was necessary to make the reception very informal, but it was thoroughly appreciated by those of our members who were able to be present, and it was apparently enjoyed by our guests.

At the December meeting the Society adopted a code of ethics prepared by a committee of the Society authorized at the last annual meeting.

As a result of the letter-ballot canvassed at the meeting on May 15, the Society decided not to lease quarters in the house of the Engineers' Club on Commonwealth Avenue, and at the same meeting authorized the board to extend the lease of its quarters in Tremont Temple and to acquire additional space. The board has leased about seven hundred square feet of floor space adjoining the old rooms of the Society, and by the removal of a partition has been able to make a very satisfactory connection with the old quarters.

It is believed that the Society has now sufficient floor area to meet its needs for several years to come.

At the meeting held November 13, 1912, the Society appropriated from the Permanent Fund a sum not to exceed two thousand dollars to be expended for furnishing and fitting up its rooms. This amount is only about one hundred dollars in excess of the income of the current year applicable to the Permanent Fund. In other words, the Society has practically appropriated the income of the Permanent Fund for the current year for the changes and improvements. A portion of this money has been used for changing the partitions and other carpenter and plumbing work, and for the purchase of new furniture, including steel bookstacks and other furnishings, almost all of which are of permanent character and can be readily used wherever the Society may be located.

The electric-light fixtures have also been replaced by new ones, which not only afford better light but will enable lantern slides to be shown in the large room more satisfactorily than with the old fixtures.

With the enlargement of the rooms and the employment of a permanent assistant librarian, the Society has considerably increased its regular running expenses. These additional expenses apply to only a part of the year just closed, but resulted in an increase in the running expenses amounting to about six hundred dollars. In spite of this, the current income of the Society was about six hundred dollars more than the expenses of the year; and if the increased expenses had applied throughout the year, the balance would still have been about three hundred dollars on the right side. It appears, therefore,

as shown in detail in the report of the Treasurer, that the Society is in a sound financial condition.

For the Board of Government,

JAMES W. ROLLINS, *President.*

ANNUAL REPORT OF THE TREASURER, 1912–13.

To the Boston Society of Civil Engineers:

Your Treasurer submits his report for the year ending March 19, 1913.

The financial information is contained in the four tables submitted herewith.

The income applicable to current expenses has been $7 493.48, or about $25 greater than that of the preceding year; the current expenses have been $6 869.33, or about $640 greater than for the preceding year,— a comparatively small increase, in view of the increased quarters and the employment of an assistant librarian, which have caused increased expenses for a considerable part of the year. The profit balance for the year has been $624.15, or about half of that of last year.

The best estimate which it is possible to make at this time for next year indicates current receipts of $7 500 and expenses of $7 200, leaving a balance of $300 available for unforeseen expenses.

There has been added to the Permanent Fund during the year $1 902.70, or about ninety dollars more than for the preceding year. This sum is within less than one hundred dollars of the two thousand dollars appropriated for alterations in rooms and for new furniture, etc. Of this appropriation, not quite half has been expended to date.

The present value of the Permanent Fund is about $31 000, including the unexpended balance of the appropriation, or $30 000 without this appropriation. The investment of this fund is such that, including the amortization of bonds bought below par, the net return must be about 4.9 per cent., but owing to the complexities of making such allowances, no attempt has been made to compute the rate of interest return.

Respectfully submitted,

CHARLES W. SHERMAN, *Treasurer.*

TABLE I. — PROFIT AND LOSS STATEMENTS.

Income:

	1909–10.	1910–11.	1911–12.	1912–13.
Members' Dues	$4 332.00	$4 567.00	$6 448.50	**$6 443.00**
Advertisements	850.00	1 004.50	984.50	**938.50**
Library Fines	3.50	4.75	5.56	**7.28**
JOURNALS sold	6.50	4.50	8.25	**9.40**
Interest		10.47	22.81	**95.30**
Total Current Income	$5 192.00	$5 591.22	$7 469.62	**$7 493.48**
Appropriation from Permanent Fund				**$2 000.00**
Entrance Fees	$670.00	$945.00	$410.00	**$525.00**
Contributions	100.00	200.00	100.00	**100.00**
Interest	659.07	1 231.78	1 301.72	**1 277.70**
Total Income Permanent Fund	$1 429.07	$2 376.78	$1 811.72	**$1 902.70**
Surplus Account		1.50		
Balance, Deficit	334.18	940.26		
	$6 955.25	$8 909.76	$9 281.34	**$11 396.18**

Expense:

Association Eng. Societies	$1 661.62	$1 912.62	$2 010.00	**$2 026.25**
Rent (net)	950.00	856.74	920.00	**1 320.75**
Light	48.54	53.76	49.68	**70.31**
Printing, Postage, Stationery	1 397.48	1 770.96	1 356.99	**1 427.95**
Salaries	750.00	1 007.00	992.00	**1 248.50**
Reporting	152.50	282.00	68.00	**20.50**
Stereopticon	135.00	180.00	130.00	**134.50**
Books	83.00	72.10	40.53	**52.11**
Binding	73.20	81.20	169.30	**81.15**
Periodicals	36.50	31.00	47.00	**34.25**
Incidentals and Repairs	41.83	79.45	84.94	**87.77**
Insurance	8.88	26.38	26.38	**26.38**
Telephone		59.82	65.24	**66.27**
Sanitary Section	60.00	45.00	14.24	**22.55**
Annual Meeting and Dinner	118.88	43.45	220.82	**73.09**
Furniture	8.75	31.50	34.25	**2.50**
Navigation Congress				**20.00**
Students' Meeting				**154.50**
Total Current Expense	$5 526.18	$6 532.98	$6 229.37	**$6 869.33**

Furniture				**$573.15**
Alterations in rooms				**375.45**
Total expended from Appropriation				**$948.60**
Permanent Fund	$1 429.07	$2 376.78	$1 811.72	**$1 902.70**
Balance of Appropriation				**1 051.40**
Current Funds, Balance			1 240.25	**624.15**
	$6 955.25	$8 909.76	$9 281.34	**$11 396.18**

NOTES FOR 1912–13.

Dues.

Received from Secretary	$6 453.00
Deduct for 1913–14 Dues in advance	78.00
Sum	$6 375.00
Add Dues paid in advance last year	68.00
Total Current Dues	$6 443.00

Advertising.

Received from Secretary	$942.50
Paid Assn. Eng. Socs.	4.00
Net earnings	$938.50

Rent. Received from Secretary, rent paid by sub-tenants, as follows:

Hersey Mfg. Co.	$500.00
N. E. W. W. Assn.	400.00
N. E. Assn. Gas Engrs.	100.00
	$1 000.00

The gross amount of the rent for next year will be $2 611, including $90 for the use of Chipman Hall for nine meetings. The rent from sub-tenants will remain unchanged, making the net rent for the year $1 611.

Salaries. At the present rate, salaries for a full year will amount to:

Secretary	$400.00
Librarian	50.00
Asst. Librarian	720.00
Custodian of Rooms	100.00
Stenographer	416.00
	$1 686.00

Interest on Permanent Fund. The interest account has been charged with the difference between the book value and the amounts received for bonds sold during the year, and no account has been taken of the greater value of accrued interest at the end of the year than at the beginning.

TABLE 2. — COMPARATIVE BALANCE SHEETS.

Assets:	March 20, 1912.	March 19, 1913.
Cash	$1 033.27	$353.26
Bonds	22 975.50	26 615.50
Coöperative Banks	6 667.83	5 315.80
Savings Banks	132.21	.....
Accounts Receivable (rent)	145.83	145.83
Library	7 500.00	7 500.00
Furniture	600.00	1 175.65
	$39 054.64	$41 106.04
Liabilities:		
Permanent Fund	$30 031.14	$30 985.24*
Current Funds	686.00	1 310.15
Accounts Payable	237.50	135.00
Surplus	8 100.00	8 675.65
	$39 054.64	$41 106.04

* Including unexpended balance of appropriation, amounting to $1 051.40.

TABLE 3. — INVESTMENT OF PERMANENT FUND, MARCH 19, 1913.

Bonds:	Par Value.	Cost.	Market Value.	Book Value.
Am. Tel. & Tel. Co. col. tr. 4s, 1929	$3 000.00	$2 328.75	$2 610.00	$2 737.50
Republican Valley R. R. 6s, 1919	600.00	616.50	612.00	618.00
Union El. St. & Pr. Co. 5s, 1932	2 000.00	2 050.00	2 020.00	2 050.00
Blackstone Valley Gas & Elec. Co. 5s, 1939	2 000.00	1 995.00	1 960.00	1 995.00
Dayton Gas Co. 5s, 1930	2 000.00	2 000.00	1 980.00	2 000.00
Milford & Uxbridge St. Ry. 5s, 1918	2 000.00	1 952.50	1 980.00	1 952.50
Railway & Light Securities Co. 5s, 1939	3 000.00	3 000.00	2 940.00	3 000.00
Superior Water, Lt. & Pr. Co. 4s, 1931	3 000.00	2 505.00	2 505.00	2 505.00
Wheeling Electric Co. 5s, 1941,	3 000.00	2 895.00	2 895.00	2 895.00
Carried forward	$20,600.00	$19,342.75	$19,502.00	$19,753.00

Brought forward	$20,600.00	$19,342.75	$19,502.00	$19,753.00
Economy Light & Power Co. 5s, 1956	1 000.00	990.00	990.00	990.00
Tampa Electric Co. 5s, 1933	2 000.00	2 000.00	1 960.00	2 000.00
Galveston-Houston Elec. Ry. 5s, 1954	2 000.00	1 940.00	1 900.00	1 940.00
Northern Texas Elec. Co. 5s, 1940	2 000.00	1 932.50	1 910.00	1 932.50
	$27 600.00	$26 205.25	$26 262.00	$26 615.50

Co-operative Banks:

25 shares Merchants Coöperative Bank (including interest to March)	$1 790.55
25 shares Volunteer Coöperative Bank (including interest to January)	3 373.75
15 shares Watertown Coöperative Bank (including interest to December)	151.50
	$5 315.80
Total	$31 931.30
Cash Deficit, borrowed from current funds	946.06
Total Permanent Fund, including unexpended balance of appropriation	$30 985.24

Note that 15 shares in Volunteer Coöperative Bank, amounting to $3 000, will mature in about two weeks. In anticipation of this, an investment in bonds has been made by borrowing from the current funds.

TABLE 4. — CONDITION OF CURRENT FUNDS, MARCH 19, 1913.

Cash	$353.26
Loaned to Permanent Fund	946.06
Excess of Accounts Receivable over Accounts Payable	10.83
	$1 310.15

REPORT OF THE AUDITING COMMITTEE.

BOSTON, MASS., March 18, 1913.

We hereby certify that we have this day examined the books and records of the Treasurer of the Boston Society of Civil Engineers for the year 1912–13; that all receipts are properly accounted for and that there are proper vouchers for all expenditures.

We have also examined the securities and investments of the Society's funds, have verified and compared same with the books and found them all accounted for and properly carried.

We have compared the financial statement of the Treasurer with the books and find it to be correct.

CHAS. R. GOW,
ROBERT SPURR WESTON,
Directors.

ANNUAL REPORT OF THE SECRETARY, 1912–13.

S. EVERETT TINKHAM, Secretary, *in account with the* BOSTON SOCIETY OF CIVIL ENGINEERS. *Dr.*

For cash received during the year ending March 19, 1913, as follows:

From entrance fees:			
47 members	at $10 =	$470.00	
1 associate		10.00	
9 juniors	at 5 =	45.00	
Total from entrance fees			$525.00
From annual dues for 1912–13:			
453	at $10 =	$4 350.00	
264	at 6 =	1 584.00	
33	at 5 =	165.00	
2	at 4 =	8.00	
		$6 287.00	
From new members		88.00	
Total dues for 1912–13			6 375.00
From dues for 1913–14			78.00
From sale of JOURNALS			9.40
From advertisements			942.50
From rent			1 000.00
From sale of bookcases			99.75
From contribution to building fund			100.00
Total			$9 129.65

BOSTON, March 18, 1913.

We have examined the above report and found it correct.

CHAS. R. GOW,
ROBERT SPURR WESTON,
Directors, B. S. C. Engineers.

Boston, March 19, 1913.

Excursions of the Society have been held during the year past as follows:

April 17, 1912. To Edison Service Station, Massachusetts Avenue, Dorchester, at the invitation of the Stone & Webster Engineering Corporation, engineers and contractors, to view the foundation work of the proposed buildings then in process of construction. The attendance of members on this occasion was 38.

September 18, 1912. To the Boylston Street Subway work, at the invitation of the Hugh Nawn Contracting Company, contractors for the work, to view the various features of construction then under way. The attendance of members on this occasion was 45.

February 19, 1913. To the Commonwealth and Fish Piers at South Boston, at the invitation of the H. P. Converse Company and Messrs. Tyson, Weare & Marshall, contractors for the work, to view the improvements undergoing construction at those places. The attendance of members on this occasion was 60.

The average attendance at the three excursions was 48.

It will be noted that your committee has seen fit to reduce the number of excursions materially from that of previous years. This policy was adopted because it seemed apparent that the interest manifested by the membership in the more frequent excursions did not warrant the annoyance and in some cases the expense to which our entertainers have often been put by reason of our visits.

The occasions when general interest in these excursions is aroused seem to be so comparatively infrequent that this committee is convinced of the wisdom of abolishing the excursion feature as such, leaving the matter in the hands of the Board of Government, who may provide for special excursions whenever in their opinion the importance of the event shall justify such action.

Your committee recommends, therefore, that the practice of maintaining a permanent excursion committee for the Society be abolished and that the duties previously assigned to such a committee be delegated to the Board of Government, to be exercised at its discretion.

The committee has on hand a balance of $52.94 which was carried over from last year and from which no payments have been made during the current year.

Respectfully submitted,

Chas. R. Gow,
Chairman, Committee on Excursions

Report of the Library Committee.

The forty-second annual report of the library, for the year 1912–13, is herewith submitted.

The number of books added to the library the past year has been 757, of which 404 were bound in cloth and 353 in paper. As usual, most of the bound volumes consist of magazines, society publications and reports.

The library now contains 7 264 volumes bound in cloth. The total number in paper is about 2 000, but many of these will be bound in cloth later, thereby diminishing the number.

During the year 204 books have been loaned to members, and fines to the amount of $7.28 have been collected, an increase over previous years.

Fifteen volumes on engineering subjects have been purchased at an expense of $38.61.

During the past year the Society's quarters have been so enlarged as to afford ample room for the library and to provide for its growth for some years to come.

A second plan case for the Government topographical plans has been bought, also two steel double stacks, affording nearly three hundred linear feet of book shelving.

The books have also been rearranged with a view to growth.

The magazines have been bound as fast as the completion of the volumes would allow, also the town reports, and some society reports given to us in paper.

The reading room has been much better patronized since the changes have been made. An assistant librarian was engaged in October, and has been employed in re-arranging the library, in indexing, etc., up to date, and completing all files of reports so far as practicable.

All the volumes in the Herschel Library have now been bound in cloth, in conformity with the promise of the Society to Mr. Herschel.

A copy of the latest world's atlas (Cram's) has been purchased.

Two valuable sets of publications have been added, one by purchase, — the Proceedings of the National Fire Prevention Association, — the other a gift from the Municipal Engineers of the City of New York of all of their transactions.

The committee recommends that the sum of sixty dollars be appropriated for the purchase of current engineering books the coming year.

Frederic I. Winslow,
Henry D. Woods,
W. E. Foss,
G. V. White,
H. T. Stiff,
Committee on Library.

Report of the Executive Committee of the Sanitary Section.

Boston, Mass., March 5, 1913.

To-night's meeting brings to a close the ninth year in the life of the Sanitary Section. Nine years ago, January 1, the first meeting of the Section was held at the Society rooms in Tremont Temple. A high standard for the meetings was set in the early days and has been maintained each year since. Your Executive Committee feel that the meetings of the past season have been no exception to the rule. Although required by the By-Laws to hold but

four meetings a year, namely, in March, June, October and December, during the past season six meetings have been held as follows:

	Attendance at Dinner.	Attendance at Meeting.
March annual meeting	26	40
June excursion	53	53
November special meeting	..	47
December meeting	17	47
January special meeting	..	50
February special meeting	..	64
Average attendance, not including the Excursion	..	50

This is the highest average attendance for seven years past.

The October meeting was omitted and the November special meeting substituted.

The June excursion was held in Worcester, Mass., where the Section, as guests of the city, inspected the Sewage Purification Works at Quinsigamond, and the work incident to the abolition of grade crossings along the Boston & Albany Railroad. The hospitality of the city was further extended in the form of a luncheon served in one of the city's parks.

The following subjects have been discussed at the meetings:

March 6, 1912. "Some Sewage Disposal Plants in Germany, France and England," Leonard Metcalf.

November 27, 1912. "The Sanitary Work of the Sanitary District of Chicago," Langdon Pearse.

December 4, 1912. "Refuse Disposal," Dr. Rudolph Hering.

January 8, 1913. "Ventilation," Prof. R. C. Carpenter.

February 5, 1913. "The Intercepting Sewer and River Improvements at Syracuse, N. Y.," Glen D. Holmes. "The New Bedford, Mass., Intercepting and Outfall Sewer." William F. Williams. "The Fitchburg, Mass., Intercepting Sewer," David A. Hartwell.

Some criticisms have been raised because more of the papers read before the Section have not been published. This is a difficulty which has confronted the officers of the Section for some time. We have felt justified in inviting speakers to come before the Section even though they were unable to present a written paper, for the sake of the information received by those present at the meetings.

Whenever it has been possible to secure a written paper, the paper has been published in the JOURNAL OF THE ASSOCIATION of ENGINEERING SOCIETIES.

Four members of the Society have been enrolled in the Section since the last annual meeting. The total membership of the Section is now 165, of which 16 are members of the Sanitary Section only.

In December the Society suffered a great loss in the death of Mr. George A. Kimball, one of the fourteen signers of the petition which brought about the establishment of the Sanitary Section. He was honored and loved by all who knew him.

At the last annual meeting, the special committee on Uniform Specifications for the Manufacture of Sewer Pipe was continued in order to coöperate, if possible, with a similar committee of the American Society for Testing Materials. Further work along this line has not been made possible during the last year, but the Executive Committee recommends that the committee be continued in the hopes that more definite results may be forthcoming in the near future.

The Committee on Rainfall and Run-off from Sewered Areas has been active and a large amount of laborious work has been done which will be of value to the profession.

During the past year, blank forms for sewerage statistics have been supplied whenever requested, but no work has been done in the way of tabulating such records.

For the Executive Committee,

FRANK A. MARSTON, *Clerk.*

ATTENDANCE AT ANNUAL MEETING

The following list contains the names of members and guests who registered as being in attendance at the Annual Meeting. The list is not complete, as some failed to register. Total attendance of members and guests at the various functions is estimated at over 275.

ADAMS, E. P.
ADAMS, H. S.
AIKEN, R. C.
ALBEE, E. E.
ALLBRIGHT, E. F.
ALLARDICE, E. R. B.
ALLEN, C. F.
ALLEN, C. M.
ANDREW, H. B.
BACON, W. H.
BAILEY, F. S.
BARBOUR, F. A.
BARTLETT, C. H.
BARTLETT, ARTHUR,
BATEMAN, [illegible]
[illegible], CORNELIUS,
BELLAMY, R. B.
BIDWELL, L. B.
BIGELOW, W. W.
BOAS, BENJAMIN,
BRACKETT, DEXTER,
BREED, C. B.
BREWER, BERTRAM,
BROCK, N. S.
BROOKS, FRED,
BROWN, A. F.
BROWN, C. L.
BRUNEL, RICHARD,

Bryer, C. S.
Buff, L. F.
Bugbee, J. W.
Burke, J. R.
Butcher, W. L.
Campbell, C. A.
Carpenter, G. A.
Carter, F. H.
Carty, J. E.
Cashman, J. M.
Chase, J. C.
Cheney, H. N.
Churchill, W. W.
Clapp, O. F.
Coburn, W. H.
Cook, M. T.
Conner, S. L.
Corthell, A. B.
Cowles, L. S.
Crocker, H. L.
Curtis, R. E.
Davis, W. W.
Davis, E. S.
Dean, F. W
DeLong, H. C.
Desmond, E. A.
Doane, A. O.
Dodd, C. H.
Dorr, E. S.
Doten, C. C.
Draper, H. R.
Dutton, C. G.
Dyer, H. W.
Eddy, H. P.
Eichorn, F. C. H.
Ellis, J. W.
Ellis, W. H. Jr.,
Emerson, G. D.
Emerson, G. C.
Enebuske, C. C., Jr.,
Evans, R. R.
Fay, F. H.
Ferguson, J. N.
Fernald, C. T.
Fernald, G. H.
FitzGerald, Desmond,
Flaws, J. B.
Foster, W. M.
Frame, J. T.
French, A. H.
French, H. W.
Fuller, A. D.
Gannett, C. H.
Gerrish, H. T.
Gerrish, J. H.
Glover, A. S.
Gow, C. R.
Gunby, F. M.
Hale, R. A.
Hammatt, E. A. W.
Hamilton, G. W.
Harkness, G. E.
Harrington, D. A.
Hartwell, H. C.
Hatch, A. E.
Haskell, A. E.
Hastings, L. M.
Hodgdon, F. W.
Hodges, A. W.
Holland, N. J.
Hollis, I. N.
Holmes, J. Albert,
Hooker, G. F.
Howard, J. L.
Howe, E. W.
Howland, Arthur,
Howland, A. H.
Houghton, C. E.
Huntington, F. W.
Hurd, S. P.
Johnson, W. S.
Jonsberg, F. F.
Keyes, J. M.
Keenan, T. H.
Kidd, A. L.
Kimball, E. R.
King, G. A.
Knowlton, C. F.
Larned, E. S.
Learned, W. F.

Lincoln, E. H.
Lockhart, J. A.
Lovis, A. M.
Loud, R. W.
Luther, H. B.
McFarlin, Kirk,
McInnes, F. A.
McNulty, J. M.
Main, C. T.
Manley, Henry,
Manley, Henry, Jr.,
Marble, A. D.
Marshall, L. K.
Marston, F. A.
Metcalf, Leonard,
Miller, H. A.
Miller, W. L.
Miner, F. M.
Moore, L. E.
Morrill, F. P.
Morrill, W. D.
Morris, F. H.
Morse, C. F.
Morse, W. P.
Moses, J. C.
Mosher, P. H.
Moulton, L. G.
Murray, F. L.
Nagle, A. R.
Nash, P. C.
Nelson, G. A.
Norwood, E. A.
Nye, G. H.
Olin, E. R.
Parker, A. W.
Pearson, C. A.
Peterson, J. F.
Pettee, E. E.
Phelps, E. B.
Pitman, L. M.
Plimpton, A. L.
Power, W. J., Jr.,
Putman, C. E.
Preble, J. J.
Robbins, A. G.
Robinson, L. C.
Rockword, E. F.
Rolfe, C. W.
Rollins, J. W.
Rourke, J. A.
Reynolds, C. V.
Reynolds, D. S.
Rew, M. W.
Rice, R. E.
Rich, B. A.
Russell, J. B.
Sampson, G. A.
Sampson, G. T.
Sanborn, F. B.
Sargent, E. C.
Sawtell, H. E.
Sawtelle, H. F.
Sawyer, W. H.
Saville, C. M.
Scorgie, J. C.
Scouler, Daniel, Jr.,
Sherman, C. W.
Sherman, E. C.
Soutar, G. P.
Small, Gilbert,
Smith, J. Waldo,
Snow, F. A.
Spalding, F. P.
Spofford, C. M.
Sprague, H. R.
Stearns, H. R.
Stiff, H. T.
Stone, J. E.
Street, L. L.
Sutherland, R. H.
Taylor, C. M.
Taylor, L. A.
Taylor, P. W.
Tarbell, A. E.
Tarbett, Ralph,
Thompson, S. E.
Thorndike, S. H.
Thorpe, L. D.
Tinkham, C. S.
Tinkham, S. E.

Toof, F. L.
Tupper, F. E.
Uhl, W. F.
Vesper, R. A.
Van Loesecke, S. S.
Waldron, S. P.
Walker, P. B.
Wason, L. C.
Webb, D. C.
Wellington, W. O.
Westcott, F. T.
Weston, R. S.
Wiley, W. T.
Winslow, F. I.
Williams, W. F.
Wood, D. M.
Wood, H. B.
Wood, F. J.
Wood, I. S.
Worcester, J. R.
Whipple, G. C.
Whitney, F. O.
Whitney, G. E.
Whitney, H. L.
Wright, Edward, Jr.,

GUESTS

Appleton, A. B.
Ashton, J. M.
Babcock, L. H.
Buck, S. M.
Burden, H. P.
Cahill, J. H.
Cross, E. L.
Curtin, E. W.
Dolkie, W. F.
Edgell, F. V.
Ellis, L. F.
Foster, D. N.
Gammage, A. L.
Heath, R. C.
Higgins, S. E.
Houghton, A. H.
King, A. C.
Moulton, S. A.
Murphy, W. A.
Packard, H. C.
Payrow, H. G.
Reilly, L. B.
Richardson, J. H.
Robertson, Robert,
Selsbee, W. E.
Sutherland, D. A.
Tucker, F. W.
Warren, H. D.
Webber, Hailan,
Whitney, G. H.
Wilson, H. P.
Winship, A. L.
Wood, R. F.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

159. Age 23. Graduate of Harvard College. Has had sixteen months' experience as instrumentman, draftsman, with location party; and estimator and outside superintendent. Desires position as draftsman, instrumentman or estimator.

160. Age 27. Attended Prince of Wales College at Charlottetown, P. E. I., and University of New Brunswick Engineering School. Has had four years' experience in steel, reinforced concrete design and construction work, as detailer and checker. Desires position in office of civil and designing engineer on reinforced concrete work or structural steel design.

161. Age 24. Graduate of Mass. Inst. of Technology. Has had two summers' experience as rodman; 1912 to date, as instrumentman, having charge of constructing engine house, shops, cooling plant and track lay-out in new yard at Mechanicville, N. Y. Desires position as instrumentman. Salary desired, $90.00 a month.

162. Age 39. Graduate of Norwich University in 1892. Has had twenty years' experience. Ten years' in general engineering work, including municipal, sewers, water works, hydrographic, court work, road construction, reservoir and railroad design and construction, land surveys, etc., also ten years' in mining engineering, including surveys, planning and superintending developments, work in coal mines, and surface drainage and other features incident to mining work. Desires position as municipal or civil engineer, or with contractor. Salary desired, $150.00 per month.

163. Age 22. Graduate of Stuyvesant High School, N. Y., 1911. Has had about two years' experience as chainman in railroad construction work. Desires position as surveyor in real estate or railroad work.

164. Age 21. Attended High School and Business College. Has had nine months' experience with locating engineers for B. & M. R. R. Desires position as rodman. Salary desired, $50.00 per month.

165. Age 31. Educated in the public schools of Lowell, Mass. Took a course in mathematics at the Boston Y. M. C. A., and the Cambridge Evening High School. Has had about four-

teen years' experience as rodman, transitman, draftsman and chief of party, in private office on street railway, subway and sewer work. Desires position as transitman, draughtsman, or inspector. Salary desired, $80.00 per month.

LIST OF MEMBERS

ADDITIONS

JOHNSON, FRANK W. ..... 9 McGregor Ave., Somerville, Mass.
MARSHALL, LAURENCE K. .....3 Brooks St., West Medford, Mass.
NAGLE, ARTHUR R. ..... 192 Main St., Milford, Mass.
WALDRON, SAMUEL P. ..... 120 Franklin St., Boston, Mass.

CHANGES OF ADDRESS

DROWNE, HENRY B. ..... 53 High St., Springfield, Mass
ELKINS, CLAYTON R. .....Room 726, Central Y. M. C. A., Baltimore, Md.
HAZEN, ALLEN ..... Forty-Second Street Bldg., New York, N. Y.
LEARY, CHARLES A. ..... 51 Kansas Ave., Hornell, N. Y.
TINKHAM, CHARLES S. .....10 Pond St., Greenfield, Mass.
TURNER, CHARLES C. .....Phoenix Bridge Co., Phoenixville, Pa.
WHIPPLE, GEORGE C. .....Forty-Second Street Bldg., New York, N. Y.

RESIGNATIONS

(In effect March 19, 1913.)

AIKEN, CHARLES W.
ALLEN, CHARLES E.
BEEKMAN, JOHN V., JR.,
BRUCE, HERBERT P.
GAGE, FREDERICK, O.
HASELTON, GAGE,
HAZELUM, THOMAS R.
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TAYLOR, CHESTER E.
WALKER, JOSEPH W.
WHITING, HOWARD E.

LIBRARY NOTES

BOOK REVIEWS

AUTOBIOGRAPHY OF JOHN FRITZ. New York: John Wiley & Sons. Pp. XIV + 326. $2.00 net.

(Donated for Review)

There has been in the past five years an increasing number of biographies of engineers, and probably the number will increase regularly, as the ranks of the engineering profession increase, and as the position of the engineer in the world rises, as is certain to be the case.

The book here reviewed is a valuable addition to biographical literature. A few quotations illustrating early practice in iron work seem to possess interest.

P. 46. "It was there that my hostility to all geared mills commenced, and I said if ever I had an opportunity to build a rolling mill, there would not be a cog wheel in the rolling department."

P. 175. "The Bethlehem Iron Company made many mistakes, but their refusal to go into the rolling of structural material was to my mind the greatest."

Later, under Mr. Charles M. Schwab, this defect was remedied. The explanation of the change of heart on the part of Mr. Fritz as to his views regarding the merits of cast iron and wrought iron for shafts, is decidedly interesting, as is the account of his difficulties in persuading the Quaker directors of the company to enter into the manufacture of armor-plate.

This volume of the life of Mr. Fritz, who has just passed away, is highly commended to every ambitious engineer, as it illustrates the ingenuity, originality and determination of one of the founders of the iron and steel industry in this country.

FREDERIC I. WINSLOW.

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Annual Report of Chief of Weather Bureau for 1898-99.

Annual Report of Director of Bureau of Mines for 1911-12.

Annual Report of Superintendent of Coast and Geodetic Survey for 1912. 2 vols., including Progress Sketches.

Annual Report of Tests of Metals for 1894-95. Gift of L. C. Wason.

Apparatus for Exact Analysis of Flue Gas. George A. Burrell and Frank M. Seibert.

Commercial Marbles of Western Vermont. T. Nelson Dale.

Designing Culverts and Short-span Bridges. Charles H. Moorefield.

Forecasting the Weather. George S. Bliss.

Preparation of Specifications for Petroleum Products. Irving C. Allen.

Sampling Coal Deliveries. George S. Pope.

Water Supply Papers. Nos. 283, 293, 301, 311.

County Reports

Essex County, Mass. Annual Report of County Engineer for 1912.

City and Town Reports

Belmont, Mass. Annual Report of Water Commissioners for 1912.

Boston, Mass. Annual Report of Directors of Port of Boston for 1912.

Holyoke, Mass. Annual Report of Water Commissioners for 1912.

New Bedford, Mass. Annual Report of Water Board for 1912.

New York, N. Y. Annual Report of Board of Water Supply for 1911.

North Adams, Mass. Annual Reports of City Officers for 1912.

Pittsburgh, Penn. Annual Report of Bureau of Construction for 1911.

Plymouth, Mass. Annual Report of Water Commissioners for 1912.

Salem, Mass. Annual Report of Water Dept. for 1912.

Woonsocket, R. I. Annual Report of Water Commissioners for 1912.

Miscellaneous

Autobiography of John Fritz.

Canada, Dept. of Mines. Pyrites in Canada. Alfred W. G. Wilson.

*Dampf und Schaufelrad. Siegfried Herzog.

*Engineering as a Vocation. Ernest McCullough.

Fire Prevention and Fire Protection. Joseph Kendall Freitag.

*Gustav Adolf Hirn, sein Leben und seine Werke. Dr. K. Keller.

International Association of Navigation Congresses. *Civil Engineering at Universal Exposition, Brussels, 1910. Questions

for consideration. Proceedings of Twelfth International Navigation Congress.

Letter from J. P. Morgan & Co. to Committee on Banking and Currency of House of Representatives, 1913.

National Fire Protection Association. List of Gas, Oil, Mechanical, and Chemical Appliances. List of Manufacturers of Fire Appliances. Suggested Ordinances Regulating Construction and Equipment of Theatres.

Note sur les Cheminées d'Usines en Béton Armé. Gift of L. C. Wason.

Obed Hussey. Follett L. Greeno, Ed.

Railway Library for 1911. Slason Thompson, Ed.

*Stillman Williams Robinson: a Memorial. Joseph Baker Davis and others.

United States Public Works. Capt. W. M. Black.

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*Gift of Clemens Herschel.

It is the aim of the Library Committee to make the library of the greatest possible value to members of the Society, and we ask your co-operation in furthering this aim. As users of the library you are in a position to note its deficiencies as well as to appreciate its good points. No doubt you know of books or periodicals that you would like to see on our shelves. No doubt you have ideas that would be of value in improving the library service and increasing its efficiency. Suggestions in regard to matters of this kind will be very welcome. They may be noted briefly in a book provided for the purpose, which will be found on the assistant librarian's desk, or given verbally to the assistant librarian. In either case, they will be passed on to the committee, who will be glad to consider them. We are already indebted to you for several suggestions, for which we thank you.

We ask your co-operation also in another matter. Not long ago, a couple of books were returned which the borrower had neglected to charge or have charged at all. In another instance, books that had been missing for some time, but which, luckily, were charged, were found by the borrower to have strayed in among his own books at home. It can readily be seen how

a combination of these two instances might lead to the permanent loss of a book. The entire library has now been pretty thoroughly overhauled, and quite a number of books have failed to come to light. In view of the above statements, is it presuming for us to ask you to search your shelves at home for the following, which are missing from Section 10?

Treatise on Masonry Construction. Ira O. Baker.
Treatise on Roads and Pavements. Ira O. Baker.
Modern Turbine Practice. John Wolf Thurso.
De Pontibus: Pocket-book for Bridge Engineers. J. A. L. Waddell.
Same's Mechanical Engineering Pocket-book.
Field Engineering Pocket-book. William H. Searles.
Holiday Study of Cities and Forts. R. S. Peabody.
Treatise on the Strength of Bridges and Roofs. Samuel H. Shreve.
Principles of Sewerage Treatment. Dr. Dunbar and H. T. Calvert.
Free-Hand Lettering. F. T. Daniels.
Topographical Drawing. F. T. Daniels.
Coal and Metal Miners' Hand Book.
Concrete Inspection. Charles S. Hill.
Economics of the Hudson River. George W. Rafter.
Sewers and Drains for Populous Districts. Julius W. Adams.
Iron Girder Bridge for Boston & Worcester Roilroad. Edward S. Philbrick.

LIBRARY COMMITTEE.

NEW ENGINEERING WORK

(Under this head a brief description of new engineering work contemplated or under construction will be presented each month. Engineers and contractors are requested to send descriptions of their work to the Secretary, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—METROPOLITAN PARK COMMISSION.—*Charles River Reservation.*—Work of construction of Anderson Bridge is in progress.

METROPOLITAN WATER AND SEWERAGE BOARD.—SEWERAGE WORKS.—Contract for Section 70, new Mystic Sewer, to be let immediately.

Directors of the Port of Boston.—COMMONWEALTH PIER No. 5.—Work is being vigorously prosecuted on this pier. The main members of the steel work on the east freight shed and under the second floor of the inner shed have been erected. The easterly platform, which is of reinforced concrete supported on oak piles has been completed practically to the headhouse, and the laying of the concrete slab on the ground slab, and reinforced concrete slab for the second floor is also in progress. The placing of the roofing has commenced and everything is in readiness for the beginning of the laying of the bitulithic pavement. There are two shifts engaged in the construction of the pier each day, the force averaging about 650 men per day. Surveys and plans are being made for the viaduct to connect Pier No. 5 at Northern Avenue with Summer Street near C Street.

PIER No. 6 (Fish Pier.)—Work has begun on strengthening the sea wall on the easterly side of Pier No. 6, which will consist of building a relieving platform behind the existing wall, and in addition there will be two lines of sheet piling securely fastened to one another by tie rods. The construction of the buildings is being continued by the Boston Fish Market Corporation.

DRY DOCK.—Plans and studies are being made for the proposed dry dock to be built at the easterly end of the South Boston flats between the main ship and the reserved channels. About fourteen diamond drill borings have been made here,

having a total length of 3,000 feet below mean high water, of which about 200 feet have been through solid rock.

East Boston.—Bids have been requested for building a wooden bulkhead on the Commonwealth Flats, east of Jeffries Point, East Boston, for the construction of about 3,000 lineal feet of oak pile bulkhead and 8,200 lineal feet of spruce pile bulkhead. Bids on this work will be opened Wednesday, April 30, 1913.

Bids have also been requested for the making of about sixty-five water jet borings and about 113 rod soundings on the Commonwealth Flats east of Jeffries Point, East Boston. These are to be opened April 16, 1913.

Plans are being made for the farther development of the East Boston waterfront.

Boston Transit Commission.—Section 1 of the Boylston-street Subway, extending from Kenmore Street and Massachusetts Avenue, is substantially completed. Section 2, extending from Massachusetts Avenue to the east line of Hereford Street, is partially completed from the easterly end of the station at Massachusetts Avenue to Hereford Street. The land to be occupied by the station has been taken by the Transit Commission and work has begun on this portion. Section 3, extending from east side of Hereford Street to the Boston Public Library, is substantially completed. The work being done on Section 4 consists of excavation for and construction of side walls between Berkeley Street and Copley Square. The driving of steel sheet piling around the station at Copley Square near the Old South Church tower is under way. The contractor for all the above-mentioned Boylston-street Subway sections is the Hugh Nawn Contracting Company.

Work on Section A of the Dorchester Tunnel, in Winter Street, is practically completed. The extension work under the Washington-street Tunnel and the Summer-street Lobby is still in progress. The Coughlan & Sheils Co. is the contractor.

The contract for Section B of the Dorchester Tunnel has been awarded to the Hugh Nawn Contracting Co. and work on it has commenced. This section includes the new station in Summer Street which extends from near Washington Street east to Arch Street.

On the extension of the East Boston Tunnel the construction of a part of the station under and near the present station in Scollay Square between Brattle Street and Howard Street is in progress. The easterly side wall and the center wall are being built in Court Street near Sudbury Street. The building 87-89 Court Street is being underpinned. Isaac Blair & Co. are the contractors.

City of Boston.—PUBLIC WORKS DEPARTMENT, SEWER AND WATER DIVISION.—*Sewer Service.*—Sewer for Fish Pier and Commonwealth Pier, South Boston. Sewer on South Boston flats; pipe sewer incased in concrete on pile foundation; bad digging. Three sections in progress, and underground pumping station at Summer Street Extension at E Street being erected; pile foundation in.

Union Park Street double sewer work still in progress.

New York, New Haven & Hartford Railroad.—Elimination of Grade Crossings, Clinton, Mass. Work on the Boston & Maine R. R. now in progress is the erection of a new concrete freight house—excavation of a rock ledge and the building of a concrete retaining wall.

The work on the N. Y., N. H. & H. R. R. is awaiting the completion of the B. & M. Freight House.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Battleship RIVADAVIA for the Argentine Navy.

U. S. Torpedo Boat Destroyer DUNCAN.

U. S. Submarines K-1, K-2, K-5 and K-6.

U. S. Battleship NEVADA.

U. S. Submarine Tender NIAGARA.

Oil Tanker RICHMOND for the Standard Oil Co.

Four Car Floats for the N. Y., N. H. & H. R. R. Co.

Steam Trawlers WAVE, BILLOW and BREAKER for the Bay State Fishing Co.

U. S. Torpedo Boat Destroyer CUSHING.

Molasses Tanker for the Boston Molasses Co

Five Submarine Torpedo Boats.

Cambridge, Mass.—On the Cambridge Parkway, near the Charles River, at Cottage Farm Bridge, the Aberthaw Construction Company is building a five-story reinforced concrete factory for the Gray & Davis Co., which company manufactures self-starters and automobile lamps. The work is being rushed with the object of completing the factory by July 1st.

The same company is building the new mill for the Boston Woven Hose & Rubber Company on Portland Street, Cambridge.

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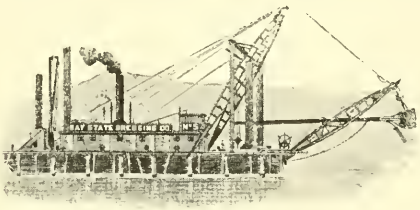

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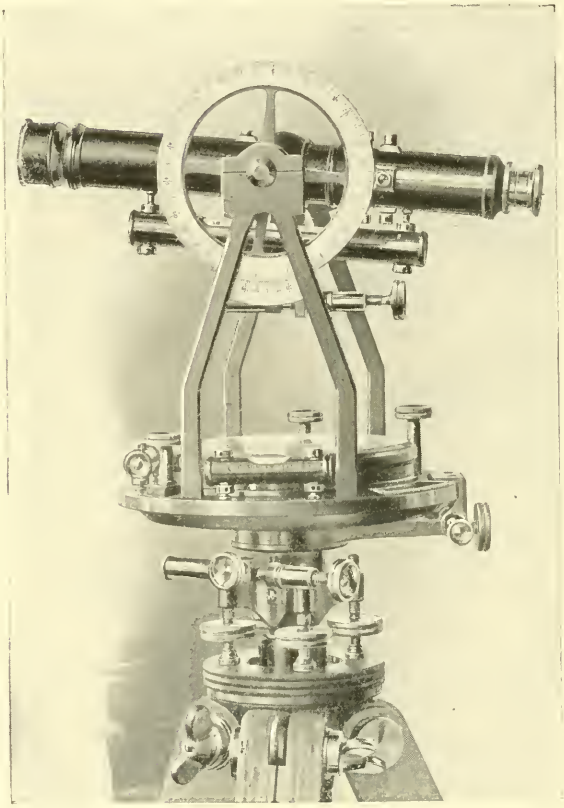

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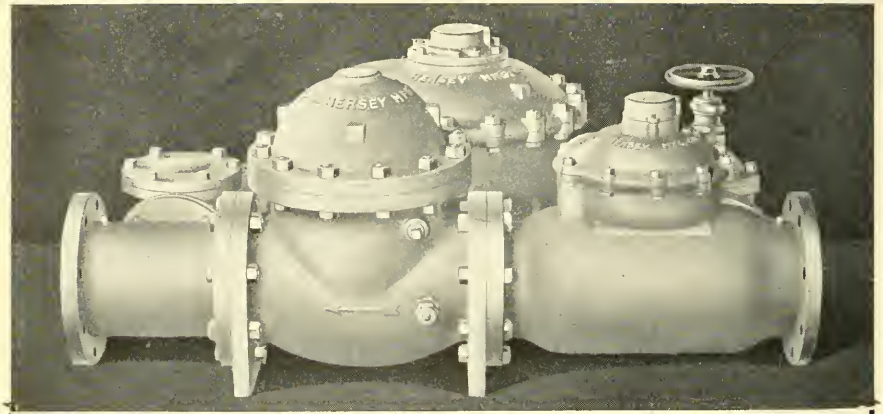

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MONTHLY BULLETIN.

NEW SERIES. MAY, 1913 No. 72

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, May 21, 1913, at 8 o'clock P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Prof. C. M. Spofford will give a talk on "The Technology Summer Surveying Camp at East Machias, Maine." Lantern slides will be used to illustrate the talk.

Members are requested to extend a *most cordial invitation to ladies* to be present at this meeting. At the close of the meeting our guests will be asked to visit the Society rooms where a social hour will be spent, and an opportunity given to examine the additions which have been made to our quarters. Light refreshments will be served.

S. E. TINKHAM, *Secretary.*

JUNE EXCURSION OF THE SANITARY SECTION

The annual excursion of the Sanitary Section will be held Friday, June 6, 1913.

The excursion will include a boat trip around Boston Harbor to inspect the sewerage works and the effect of the discharge of sewage at the South Metropolitan outlet at Nut Island, the North Metropolitan outlet at Deer Island, and the Boston Main Drainage works at Moon Island.

The meeting place will be at the Quincy railroad station

at 11.30 o'clock A. M., which place may be reached either by train or trolley at the convenience of the members.

A special electric car will convey the party to Noterman's pavilion, Hough's Neck, where a lobster dinner will be served, price $1.00 per plate.

After dinner, the party will go by boat to Nut Island, thence to Moon Island, and from there to Deer Island. Pamphlets will be furnished describing the various sewerage works to be found at each of the above outlets, with data in regard to the amount of sewage discharged, and other facts of interest; also a lithographed map of the harbor, showing the islands and sewage outlets.

Special apparatus will be carried on the boat with which to take samples of the harbor water at different depths, and field analyses will be made to determine "dissolved oxygen."

Further details with information in regard to trains, trolleys, etc., will be given in the special notice to members to be sent out a few days preceding the date of the excursion. It is planned to make this occasion one of value as well as pleasure. The expenses in addition to the dinner will not be large.

MEETING OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS (BOSTON SECTION)

A meeting of the Boston Section of the American Institute of Electrical Engineers will be held on Friday, May 23, 1913, in the Edison Auditorium, 39 Boylston Street, Boston, at 7.45 P. M. The subject and author of the paper of the evening will be:—"Organization and Methods of a Large Engineering and Construction Company (with particular reference to the Stone & Webster Engineering Corporation") by Roy Manwaring Henderson, Assistant Construction Manager, Stone & Webster Engineering Corporation.

A most cordial invitation is extended to members of the Boston Society of Civil Engineers to be present at this meeting.

APPLICATIONS FOR MEMBERSHIP

[May 14, 1913]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Fales, Almon Lawrence, Worcester, Mass. (Age 37, b. Medway, Mass.) Graduate of Worcester Polytechnic Institute, 1898. From 1898 to 1901, assistant chemist, Sewage Treatment Works, Worcester; 1901 to 1913, supervising chemist, Sewer Dept., Worcester, in charge of Sewage Treatment Works and Testing Laboratories at City Hall. At present, consulting engineer of the firm of Metcalf and Eddy, Boston. Elected a member of the Sanitary Section March 1, 1905, and now desires to be transferred to grade of Member. Refers to W. T. Barnes, H. P. Eddy, F. A. Marston, Leonard Metcalf, C. W. Sherman, and R. S. Weston.

Vennard, William Leuty, Lynn, Mass. (Age 40, b. Lynn, Mass.) Educated in Lynn Public Schools and by study with Prof. C. B. Breed of Boston, together with the experience gained from working in various engineers' offices and drafting rooms. At present city engineer of Lynn, Mass. Refers to Bertram Ames, H. K. Barrows, C. B. Breed, C. W. Gay, R. H. Sutherland.

MINUTES OF MEETING

APRIL MEETING OF THE SOCIETY

Boston, Mass., April 16, 1913.—A regular meeting of the

Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 7.50 o'clock, President Frederic H. Fay in the chair, 75 members and visitors present.

The reading of the record of the annual meeting of March 19, 1913, was by vote dispensed with and approved as printed in the April *Bulletin* with the addition of the full report of the tellers of election.

The President reported for the Board of Government that it had elected the following to membership in the grades named:—

Members:—Messrs. Randolph Bainbridge, Frederic Bonnet, Jr., Clarence Elmore Carter, Frederick M. Gibson, Larenzo Gordon Moulton, Frank Cummings Shepherd, George M. Stevens and George Frederick Temple.

Junior:—Mr. Charles Vaughn Reynolds.

He also reported that the Board had elected the Secretary to serve as Librarian over the ensuing year and had appointed, under authority of a vote of the Society passed at the annual meeting, the following committees:—

On Excursions:—Charles R. Gow, Edmund M. Blake and James B. Flaws.

Library Committee:—S. Everett Tinkham, Frederic I. Winslow and Charles M. Spofford.

On Publications and to represent the Society on the Board of Managers, Association of Engineering Societies:—S. E. Tinkham, Dexter Brackett, C. W. Sherman, H. P. Eddy, A. T. Safford, J. R. Worcester, H. F. Bryant, and E. R. Olin.

The Committee, Messrs. J. P. Snow and H. W. Hayes, appointed to prepare a memoir of our late associate, Albert S. Cheever, submitted its report which was read by the Secretary. He also read the report of the Committee, Messrs. J. R. Worcester, J. W. Rollins and C. T. Fernald, appointed to prepare a memoir of Past-President George A. Kimball. Both memoirs were received and ordered printed in the Journal of the Association of Engineering Societies.

The President called attention to the proposed joint dinner of the engineers of Boston which will be held at the Boston City Club on April 29, 1913, and stated notices would be sent out in a few days giving full information.

On motion of Mr. Sherman, it was voted that the regular June meeting of the Society be held on such a date as the Board of Government may select.

S. E. Tinkham, *Secretary*.

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

166. Age 24. Two years at the Mass. Inst. of Technology. Has no experience. Desires position as surveyor during the summer vacation.

167. Age 26. Graduate of Dartmouth College, 1910, and Thayer School of Civil Engineering, 1911. Junior Am. Soc. C. E. Has had three field seasons' experience as assistant to city engineer, and as junior topographer, and seventeen months' as computer, draftsman, and instrumentman. Desires position as transitman, inspector, draftsman, or general engineering work as that of a resident engineer. Prefers outside work. Salary desired $100 per month.

168. Age 35. Member. Three years at Mass. Inst. of Technology. Fifteen years' experience in general practice, including twelve years' on railroad work in charge of preliminary surveys, calculation, trackwork, and construction work. Minimum salary $125 per month.

169. Age 27. Three years civil engineering at Harvard University, and two years electrical and mechanical engineering at Lowell Institute. Member Am. Soc. C. E. and Am. Inst. Elect. Engrs. Has had five years' experience as instrumentman, chief of party, land and city surveying, and construction of

underground electrical conduits. Desires position on hydraulic or electric construction.

170. Age 21. Will receive B. S. degree in civil engineering at Tufts College, June, 1913. Five summers' experience in machine shop, engine room, etc., and as surveyor and draftsman during part of last winter. Desires position in civil engineering work.

171. Age 27. Graduate of Dartmouth College. About nine years' experience as rodman, instrumentman, chief of party on railroad construction. Desires position as transitman or chief of party. Salary desired $80 per month.

172. Age 21. Two years in civil engineering at Mass. Inst. of Technology. Has had one summer's experience as clerk in office of consulting engineer. Desires position as timekeeper or rodman during summer months. Salary desired $45 per month.

173. Age 28. Member. Five years in railroad location, construction and maintenance as transitman, draftsman, and assistant resident engineer; and five years in general engineering and municipal work. Position immaterial; would accept drawing, tracing, and lettering to do at home. Salary desired $1200 per year.

LIBRARY NOTES

Recent Additions to the Library

U. S. Government Reports

Annual Report of Chief of Weather Bureau for 1911-12.

Classification of Public Lands. George Otis Smith and others.

Coal Fields of Grand Mesa and West Elk Mountains, Colorado. Willis T. Lee.

Eagle River Region, Southeastern Alaska. Adolph Knopf.

Economic Geology: Metals and Non-metals except Fuels. Waldemar Lindgren.

Iron-ore Deposits of the Eagle Mountains, California. Edmund Cecil Harder.

Mineral Resources of the United States, 2 vols. Part I., Metals. Part II., Non-metals.

Oil and Gas Wells through Workable Coal Beds. George S. Rice, O. P. Hood and others.

Road Models of Office of Public Roads.

Statistics of Public, Society, and School Libraries, 1909.

Water-Supply Papers, Nos. 259, 297, 300, 310, 313, 316.

State Reports

Connecticut. Annual Report of Public Utilities Commission for 1911-12.

Massachusetts. Annual Report of Harbor and Land Commissioners for 1912.

Ohio. Annual Report of State Board of Health for 1911.

City and Town Reports

Brookline, Mass. Annual Report of Water Board for 1912.

Chicago, Ill. Diversion of Waters of Great Lakes by way of Sanitary and Ship Canal, 1913. Lyman E. Cooley.

Concord, Mass. Annual Report of Road Commissioners for 1912.

Concord, Mass. Annual Report of Town Officers for 1912.

Fitchburg, Mass. Annual Report of City Engineer for 1912.

Leominster, Mass. Annual Report of Water Board for 1912.

Lewiston, Maine. Annual Report of Water Board for 1912.

Medford, Mass. Annual Report of Water and Sewer Commissioners for 1912.

New Bedford, Mass. Annual Report of Engineering Department for 1912.

New York, N. Y. Preliminary Reports on Disposal of Sewage, VI. and VII.

Newton, Mass. Annual Report of Water Department for 1912.

Oklahoma City, Okla. Report on Improved Water Supply, 1913. Gift of Desmond Fitzgerald.

Pittsburgh, Penn. Annual Reports of Department of Public Works for 1907 and 1908, and of Bureau of Construction for 1910.

Rutland, Vt. Annual City Report for 1912.

Springfield, Mass. Annual Report of Water Commissioners for 1912.

Taunton, Mass. Annual Report of Water Board for 1912.

Waltham, Mass. Annual Reports of City Engineer, Supt. of Sewers, and Board of Survey, for 1912.

Wilmington, Del. Annual Report of Board of Water Commissioners for 1911-12. Gift of Desmond Fitzgerald.

Miscellaneous

Canada, Dept. of Mines. Mineral Production of Canada for 1912. John McLeish. Investigation of Peat Bogs, 1910-11, with maps. A. Anrep.

Engineering Index for 1912.

Institution of Civil Engineers. Minutes of Proceedings, Vols. 186-189, inclusive.

Iron and Steel Institute. Journal for 1911 (last half) and 1912, 3 vols.

Above two items gift of Massachusetts Institute of Technology Library.

Instructions to Inspectors of Street Paving. Gift of H. W. Durham and issued under his direction.

National Board of Fire Underwriters. Reports on the following cities: Asbury Park, N. J., Atchison, Kans., Atlantic City, N. J., Augusta, Ga., Birmingham, Ala., Bloomington, Ill., Chelsea, Mass., Cleveland, Ohio, Englewood, N. J., Galveston, Texas, Indianapolis, Ind., Jacksonville, Fla., Joliet, Ill., Joplin, Mo., Kansas City, Kans., Kansas City, Mo., Milwaukee, Wis., Ocean Grove, N. J., Omaha, Nebr., Pittsburgh, Penn., Providence, R. I., Racine, Wis., Savannah, Ga., Scranton, Penn., Springfield, Mass., Springfield, Mo., Tampa, Fla., Wheeling, W. Va., Winsted, Conn., Worcester, Mass.

National Geographic Magazine for 1909-10.

Notes on Stereotomy. Dwight Porter.

River, Lake and Land Conservancy in Anhui and Kiangsu. Charles Davis Jameson. Gift of the author.

Zeitschrift für Bauwesen, with Atlas, 1909-1912, 4 vols. Gift of Clemens Herschel.

We are glad to note that a number of valuable suggestions have been received from members in response to our invitation in last month's *Bulletin*. The "Suggestion Book" is always on the Assistant Librarian's desk, and is available evenings and Sundays as well as at other times.

LIBRARY COMMITTEE.

NEW ENGINEERING WORK

(Under this head a brief description of new engineering work contemplated or under construction will be presented each month. Engineers and contractors are requested to send descriptions of their work to the Secretary, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Park Commission.—Work of construction of Anderson Bridge is in progress. General road repairs with bituminous binders.

Metropolitan Water and Sewerage Board.—Sewerage Works.—Work on Section 70, new Mystic Sewer, has been started at Winchester.

Directors of the Port of Boston.—Commonwealth Pier No. 5.—The construction of the main portions of the east and center, or freight and passenger sheds, on this pier has been practically completed, including the reinforced concrete slab on the second floor and the major part of the slab on the first floor. The work of laying the bitulithic pavement is being continued on both the first and second floors and the placing of the Fenestra sashes is about one-half completed. The contractor is now installing the Ogden doors which are to go on the first and second floors on the easterly side of the freight shed, and the driving of the foundations for the headhouse is also under way, and considerable work has been done on the drainage and preliminary work of paving Northern Avenue.

Pier No. 6 (Fish Pier).—The work of building the relieving platform behind the easterly wall of this pier has been continued. This relieving platform will be located between the sheet piling mentioned last month and the granite sea wall. The foundation piles are 45 feet long and are being driven by means of a steam hammer.

Dry Dock.—Studies and designs are being made for the proposed dry dock. The making of diamond drill borings has been completed. A total of twenty-nine borings has been made with a total length of about 1850 feet below mean high water, of which about 350 feet have been made through solid rock.

East Boston.—Bids have been received for building a wooden bulkhead on the flats east of Jeffries Point but as yet the contract has not been awarded. The contract for making water jet borings and rod soundings on the area proposed to be filled on the flats east of Jeffries Point was awarded to the John T. Scully Foundation Co.

Boston Transit Commission.—Section 1 of the Boylston-street Subway, extending from Kenmore Street to Massachusetts Avenue, is substantially completed. Trees and bushes are being replaced over the line of the subway in the Fens and on Commonwealth Avenue. The ornamental concrete balustrade around the incline on Commonwealth Avenue is being constructed by the Emerson and Norris Co. On Section 2 of the Boylston-street Subway the old building of the Boston Cab Co., at the corner of Massachusetts Avenue and Newbury Street, has been torn down and work has been commenced on the Massachusetts-avenue Station, which station will cross diagonally under this so-called Cab Co. property and under the rear of several stables fronting on Newbury Street, and will extend into the yard formerly occupied by the Public Works Department. The remainder of the section, extending to Hereford Street, is substantially completed. Section 3, from the east line of Hereford Street to the Boston Public Library, is completed. Section 4 extends from the Boston Public Library to Arlington Street. The steel sheet piling around the station at Copley Square is being driven by a No. 1 Union Iron Works' hammer, operated by compressed air. The piling is of the Lackawanna arched-web section, weighing 35 pounds to the square foot, driven in lengths of 35 feet. Between Berkeley Street and Copley Square the subway sidewalls are completed. The invert, center columns and roof are being placed at Berkeley Street and at Clarendon Street. The contractor for Sections 1, 2, 3 and 4 of the Boylston-street Subway is The Hugh Nawn Contracting Co.

Section A of the Dorchester Tunnel, in Winter Street, is practically completed. The extension work under the Washing-

ton-street Tunnel and under the Summer-street Lobby is still in progress. The Coughlan & Sheils Co. is the contractor.

Section B of the Dorchester Tunnel includes the proposed station in Summer Street which will extend from near Washington Street east to Arch Street. Underpinning the buildings along the line of the work is in progress. The contractor is The Hugh Nawn Contracting Co.

On the extension of the East Boston Tunnel the construction of a part of the station under and near the present station in Scollay Square between Brattle Street and Howard Street is in progress. Construction is also going on between Howard Street and Stoddard Street, the buildings being supported over the excavation on steel beams. A permanent pump well has been built at the northerly end of the station platform near Hanover Street. Isaac Blair & Co., Inc., is the contractor.

City of Boston.—Public Works Department, Highway Division, Paving Service.—Work is in progress on the following streets:—Brainerd Road, from Harvard Avenue to Warren Street, tar-macadam; Metropolitan Avenue, from Washington Street to Kittredge Street, artificial stone walks; Hadwin Way, from Hyde Park Avenue to Hammatt Road, tar-macadam; South Street, from Robert Street to Centre Street, artificial stone walks; Washington Street, from Blue Hill Avenue to Talbot Avenue, wood block; Homes Avenue, from Topliff Street to Draper Street, macadam; Barrymore Street, from Blue Hill Avenue to Harvard Street, macadam; Milton Avenue, from Norfolk Street to Evans Street, artificial stone walks; Tucker Street, from Woodrow Avenue to Callender Street, tar-macadam; Holiday Street, from Bowdoin Street to Topliff Street, macadam; Mascot Street, from Mountain Avenue to Ballou Street, macadam; Mascoma Street, from Quincy Street to Lawrence Avenue, tar-macadam; Morton Street, from Harvard Street to Canterbury Street, grading; Sachem Street, from Calumet Street to Parker Hill Avenue, macadam; Tetlow Street, from Worthington Street to Tremont entrance Back Bay Fens, tar-macadam.

New York, New Haven & Hartford Railroad.—Clinton, Mass. Elimination of Grade Crossings. Work on the Boston

& Maine R. R. now in progress is the erection of a new concrete freight house, grading and placing curb on new street, and the building of a concrete retaining wall.

Work on the New Haven is awaiting the completion of the B. & M. Freight House.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

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U. S. Battleship NEVADA.

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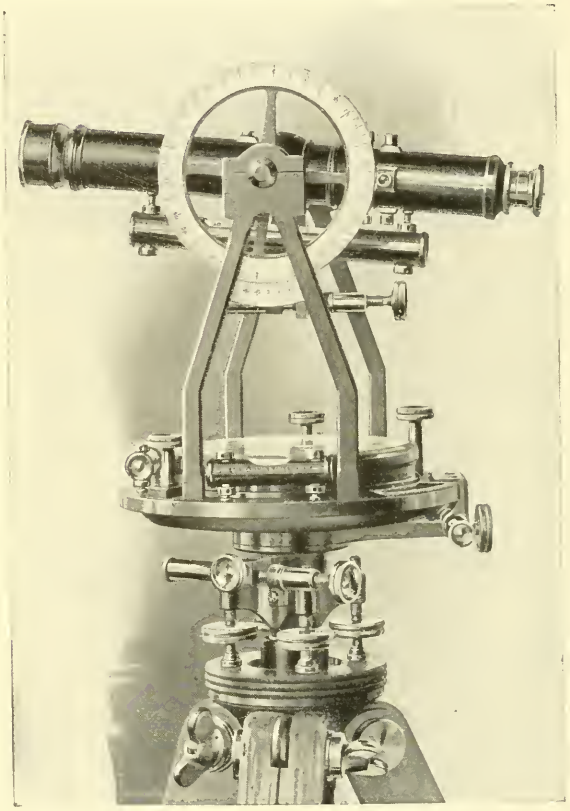

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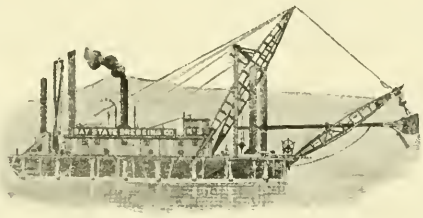

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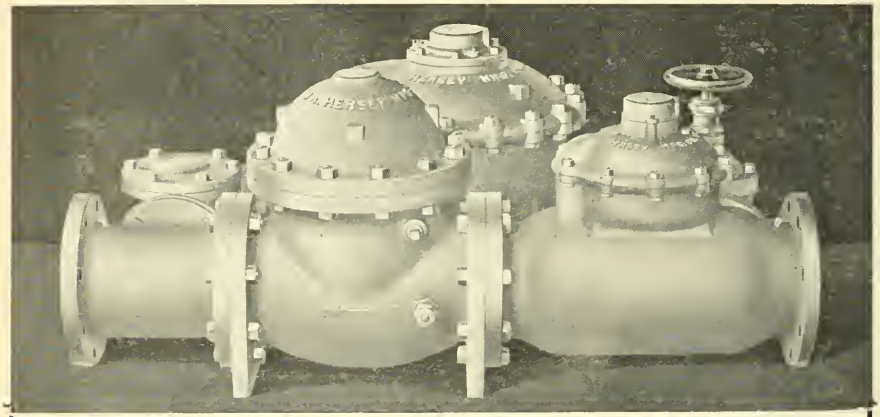

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BOSTON SOCIETY OF CIVIL ENGINEERS
ORGANIZED JULY 3, 1848

MONTHLY BULLETIN.

NEW SERIES. JUNE, 1913 No. 73

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, June 25, 1913, at 8 o'clock P.M., at HOTEL BRENTON, BASS POINT, NAHANT.

Business of the Meeting. To canvas the letter ballot on the Recommendation of the Board of Government in relation to the withdrawal of the Society from the Association of Engineering Societies.

Prof. Charles B. Breed will give an illustrated talk on the History and Progress of the Elimination of Grade Crossings at Lynn, Mass.

S. E. TINKHAM, *Secretary.*

EXCURSION TO LYNN AND BASS POINT JUNE 25, 1913

Arrangements have been made whereby the members of the society may visit and inspect the construction work now under way in connection with the elimination of grade crossings in the city of Lynn, on the afternoon of June 25, 1913.

Members should arrange to take the 1.35 p.m. train from the North Station to West Lynn from which point the party will walk over the line of construction to East Lynn.

The work contemplated under this improvement is estimated to cost approximately $3,000,000 of which about one

third has been completed. Heavy concrete and steel construction constitutes the bulk of the work.

From East Lynn trolley cars will be taken for Bass Point, where dinner will be served at Hotel Brenton at 6.30 o'clock.

Those who do not wish to inspect the grade crossing work can take the 5.10 boat from Otis Wharf, Atlantic Ave., Boston, for Bass Point, arriving in time for the dinner. Members who wish to attend only the meeting can take the 6.15 boat.

The return will be by boat leaving Bass Point at 9.45 p.m., or by train from Lynn.

The price of the dinner will be $1.50 and the fare by boat is twenty-five cents each way. If you intend being present at the dinner or the meeting you are requested to notify the Secretary at once.

EXCURSION COMMITTEE.

APPLICATIONS FOR MEMBERSHIP

[June 18, 1913]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

BURDEN, HARRY P., Lynn, Mass. (Age 23, b. Lynn, Mass.) Entered the University of Maine in Sept. 1907, and remained there for three years.

In 1910, entered the City Engineer's Office, Lynn, and remained for nine months. For five months employed with the Acme Engineering & Contracting Co., Herkimer, N. Y., as timekeeper and material clerk. In September 1912, re-entered the University of Maine and graduated in June 1913, with degree of B. S. in Civil Engineering. At present time in the City Engineer's Office, Lynn. Refers to H. S. Boardman, C. B. Breed, A. L. Maddox, G. P. Soutar, and R. H. Sutherland.

Eaton, Charles William, Haverhill, Mass. (Age 51, b. Haverhill, Mass.) Student, Course 1, Mass. Inst. of Technology, class of '85. Assistant and instructor at Mass. Inst. of Tech. for six years; director, Mechanic Arts Teachers College, N. Y.; intructor, Pratt Inst., Brooklyn, N. Y. Planned and equipped The Clarkson Memorial School of Technology at Potsdam, N. Y., and was its first Director. Vice-President and Supt. of the National Dredging Co., Wilmington, Delaware, for ten years. Since 1905, President and owner of the Standard Dredging Co., Wilmington, Del. Has been constantly in technical and scientific work from 1884 to 1913. Refers to C. F. Allen, A. E. Burton, F. H. Fay, Dwight Porter, C. M. Spofford, and G. F. Swain.

MINUTES OF MEETING

MAY MEETING OF THE SOCIETY

Boston, May 21, 1913.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 8.15 o'clock. President Frederic H. Fay in the chair, 75 members and visitors present including ladies.

The reading of the record of the regular meeting in April was dispensed with and it was approved as printed in the May Bulletin.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:—

Members:—Messrs. Lawrence H. Allen, (transferred from Junior) Frank Adams Baker, Thomas Francis Dorsey and John P. Wentworth (transferred from Junior.)

Juniors:—Messrs. Edward Porter Alexander, Pablo Beola and Frank Jay Jerome.

The Secretary also reported for the Board that it had received a report from a committee appointed to consider the feasi-

bility of the Society publishing its own transactions and that by a unanimous vote had accepted the report and adopted the recommendation therein made. The Board also voted to submit the report to the Society at this meeting with the suggestion that the recommendation be submitted to letter ballot, to be canvassed at the June meeting. The Secretary then read the following report:—

Boston, May 17, 1913.

To the Board of Government of the Boston Society of Civil Engineers:

Your Committee appointed to consider the desirability of withdrawing from the Association of Engineering Societies and the probable cost of publishing an independent journal has carefully considered the matter and reports as follows:

The Association of Engineering Societies was formed in 1881 with four societies as members: The Boston Society of Civil Engineers, The Engineers Club of St. Louis, the Civil Engineers Club of Cleveland and the Western Society of Engineers.

The objects of the association are outlined in the preamble to the Articles of Association as follows: "For the purpose of securing the benefits of closer union and the advancement of mutual interests, the engineering societies and clubs hereunto subscribing have agreed to the following Articles of Association."

Article 1 is as follows: "The name of the association shall be 'The Association of Engineering Societies'. Its primary object shall be to secure a joint publication of the papers and transactions of the participating societies."

In the first issue of the journal the Board of Managers make the following statement showing the ambition of the promoters of the association and of those responsible for its management during the first year of its existence:

> "The association has been called into being by no narrow spirit. Many of its promoters believe that local engineering societies should be established and fostered in every center of population where the engineering profession is sufficiently

strong to support one; thus bringing each member within the easiest possible reach of his society. They also believe that these local societies should be brought into affiliation by some association with a wider sphere of action, by means of which common purposes may be executed, and through which their energies may be stimulated to high professional aims.

"While many have been actuated by this broad spirit, the coöperation of these widely separated societies has been, perhaps, mainly secured through a desire to effect an interchange of professional papers. . . .

"May we not hope that this act of coöperation is merely the initial stage in the development of an organization from which more than the interchange of papers will be realized and for which we may reasonably predict a great future? We surely indulge the belief that the articles of association were not only begotten in a generous spirit, and are not only founded upon correct principles, but that they possess sufficient vitality and adaptability to permit growth in any direction which experience may indicate as desirable; that by wise counsel and the cultivation of a professional esprit de corps, an organization will ultimately be evolved from this beginning which will perform a work not now being done by any association in the land; a work beneficial to the participating societies as societies and to every engineer who desires a better tone and higher standing for the engineering profession."

In the thirty-three years of the existence of the association the hopes of the promoters have not been realized and the objects for which it was founded, other than the interchange of papers, have been lost sight of. The association now simply exists for the publication of such papers as the different societies may wish to have published and may send to the secretary for that purpose. The desirability of remaining in the association depends, therefore, entirely upon the relative advantages of the joint publication and of the independent journal.

It is interesting to note that of the four societies which

founded the association, only one besides The Boston Society of Civil Engineers remains in the association, the others having withdrawn, and they are now publishing their own journals, while the remaining society, the Engineers Club of St. Louis, is contemplating similar action. Twenty different societies have joined the association at different times and eleven of them have withdrawn for various reasons. The association now numbers nine societies, and the number of journals sent to each society, which represents approximately the membership of the society, is as follows:

Boston Society of Civil Engineers	874
Engineers Club of St. Louis	363
Civil Engineers Society of St. Paul	62
Montana Society of Engineers	122
Technical Society of the Pacific Coast	91
Detroit Engineering Society	307
Utah Society of Engineers	112
Oregon Society of Engineers	193
Louisiana Society of Engineers	190
	2,314

The number of papers which have been published in the journal, with the total number of pages contributed by each society, during the ten years 1903 to 1912 inclusive, is shown in the following table:

	Papers	Pages
Boston Society of Civil Engineers	119	2,728
Montana Society of Engineers	28	291
Civil Engineers Club of Cleveland	16	222
Engineers Club of St. Louis	50	784
Louisiana Engineering Society	24	440
Engineers Society of Western New York	6	94
Technical Society of the Pacific Coast	48	685
Detroit Engineering Society	20	256
Toledo Society of Engineers	4	52
Engineers Club of Minnesota	6	52

Civil Engineers Society of St. Paul	11	117
Utah Society of Engineers	8	124
Engineers Society of Milwaukee	3	38
Oregon Society of Engineers	8	86
	351	5,969

From the above it will be seen that the Boston Society has furnished an average of about 12 papers per year to the journal, containing about 273 pages of text, or nearly one-half of the total.

We believe the desirability of the society having its own journal, provided the expenses will not be materially increased thereby, will be conceded by everyone. The only possible advantage of the joint publication, other than saving in expense, is in receiving the published papers of the other societies, but most of the members, we believe, would prefer to have the smaller journal without the papers contributed by the other societies, and have the papers which are presented to our own society printed promptly with written discussions, than to have the present bulky volume containing many papers of little interest to engineers in this section of the country.

The publication of an attractive journal under the name of The Boston Society of Civil Engineers will give the society a much better standing. There is very little now by which the public can learn that there is a Boston society of civil engineers. It has one publication in which none but members of the society are interested. The papers are published in a journal in which the name of the society appears with many other names in an inconspicuous place. The society gets no advantage from exchanges, as it has nothing to exchange.

We believe that the advantages to the society of having its own journal far outweigh the disadvantage of losing the papers presented by other societies, and that the only consideration which should keep us from taking such steps as would lead to an independent publication, is that of expense.

If the society should publish its own papers, we believe that the best method of doing so would be to incorporate them

in the Monthly Bulletin, which is now issued ten times a year, printing them in advance if possible, otherwise immediately after their presentation, inviting written discussion by the members The most important discussions should also be printed promptly in the Bulletin.

At the end of the year, or oftener if the number of papers warrants it, all of the papers and discussions should be printed in one volume which can be sent to the members, bound, if they so desire. In this way the papers would reach the members promptly, and the written discussions could be placed with the papers, when they are finally printed, instead of in some subsequent volume as at present. This would involve printing the papers twice, but the extra expense of this would not be large, as the pages could be electrotyped at small cost.

We find the present cost to the society of the Journal of the Association of Engineering Societies is about $2,000 per year. The cost of the Bulletin, not including postage, is between $650 and $700 per year. It is therefore fair to assume that, if the present arrangement is continued, the cost to the society of its publications will be about $2,700 per year.

The best evidence as to the probable cost of an independent publication is that furnished by the Journal of the New England Water Works Association, which is issued quarterly. The total number of pages in this journal in 1911, which was apparently a typical year, was 654, and the edition was 1,000. Our edition would be substantially the same, and the total number of pages under present conditions, not including the reprinted papers which would be sent to the members in one volume at the end of the year, would not be far different. The Water Works journal is published quarterly, while ours would be issued in ten numbers, increasing the expense to our society very slightly.

The gross cost of the Water Works Journal for 1911 was $2,626, but from that, in order to compare it with the cost of our Journal, must be taken the advertising agent's commission, the cost of reporting meetings and the amounts received for reprints, which leave $2,170. This includes $300 paid to the editor, a part of which, with our organization, would undoubtedly be saved.

It is safe to assume that, exclusive of the volume of reprinted papers, the cost to the society would not be in excess of $2,200 a year. The getting together of the papers in one volume would consist simply in assembling and printing. The expense of this would not be more than $300, making the total cost of the publications of the society $2,500 per year, or $200 less than the amount now paid for this purpose.

The advertising space in the new bulletin should be of more value than at present, and the income from this source might reasonably be expected to materially increase. The exchanges which we would receive would save a considerable sum which is now expended for periodicals.

We believe that, even at an increased expense, provided the funds were available, it would be of distinct advantage to the society to publish its own journal, but we are convinced that there will be an actual saving rather than an increased cost. We accordingly recommend that steps be taken to withdraw from the Association of Engineering Societies at the end of the present calendar year, and that thereafter the papers presented to the society be published in an independent journal.

Respectfully submitted,

William S. Johnson.
Charles W. Sherman.
S. Everett Tinkham.
Committee.

Mr. Gow moved and it was duly seconded. That the Secretary be instructed to have prepared and mailed to each member of the Society on or before June 1st, a copy of the Special Committee's Report to the Board of Government, together with a letter ballot on the acceptance or rejection of the recommendations therein contained, said letter ballot to be canvassed at the June meeting of the Society.

Mr. Bryant thought that the report should be discussed at a meeting of the Society and moved an amendment to the motion providing for the canvass of the letter ballot at the September meeting. On a vote being taken the amendment was lost. The original motion was then carried by a unanimous vote.

The Committee (Messrs. William Wheeler and Harrison P. Eddy) appointed to prepare a memoir of our late associate Charles A. Allen, presented its report and by vote it was accepted and ordered to be printed in the Journal.

Prof. Charles M. Spofford then gave a very interesting talk illustrated by lantern slides on "The Technology Summer Surveying Camp at East Machias, Maine."

Before declaring the meeting adjourned, the President extended a cordial invitation to the guests present, to visit the Society rooms on the floor above and examine the additions which had been made to the Society's quarters. The invitation was apparently accepted by all present and a very pleasant hour was spent in the rooms by members and guests, during which light refreshments were served.

[Adjourned] S. E. Tinkham, *Secretary*.

SANITARY SECTION EXCURSION AROUND BOSTON HARBOR

Boston, Mass., June 6, 1913. The annual excursion of the Sanitary Section, Boston Society of Civil Engineers, was held today. Members and guests to the number of more than seventy gathered at the Quincy, Mass., railroad station at 11.45 o'clock, and were conveyed in a special electric car, furnished through the courtesy of Mr. Ezekiel C. Sargent, to Noterman's Pavilion, Hough's Neck, where a most excellent shore dinner was served. There were 72 members and guests including a number of ladies present at the dinner. The Quincy Yacht Club very courteously opened their house to the use of the excursion party, and although the time allowed was very brief, a large number availed themselves of the opportunity to inspect the Club's quarters.

The steamer "Griswold" of the Nahant line was waiting at the Hough's Neck wharf to take the party to Nut Island where opportunity was afforded to inspect the screen house of the South Metropolitan Sewerage System.

Pamphlets were provided by the Society giving a map of the harbor with the three principal sewer outfalls, the Low

and High-Level intercepting sewers of the Metropolitan System and the trunk line of the Boston Main Drainage Works.

From Nut Island the party went to Moon Island to visit the storage reservoirs and appurtenances connected with the outfall works of the Boston Main Drainage System. The sewage had been held later than usual so that the party might see the discharge and its effect on the harbor water.

Messrs. Julius W. Bugbee, Arthur L. Gammage and Dr. Frederick Bonnet, Jr., gave demonstrations of the methods of sampling water at various depths and of analyzing the same for "dissolved oxygen" by both the Winkler and the Levy methods.

The trip from Moon Island to Deer Island was made by a roundabout way in order to observe the sewage discharging from the Nut Island outlet off Peddock's Island and the outlet near Deer Island light.

At Deer Island, the pumping engines, boilers, screens and accessories to the outfall works of the North Metropolitan System were viewed with considerable interest.

It was the intention, after leaving Deer Island to go to the Calf Pasture Pumping Station in Dorchester, but owing to the stage of the tide and the inability of the steamer to turn in the channel, this part of the excursion had to be abandoned, and instead the steamer sailed along the waterfront, by the new Commonwealth docks and the East Boston docks. The steamer returned to Otis Wharf, Atlantic Ave., about 5.30 P. M. There were 77 members and guests on the steamer trip.

FRANK A. MARSTON, *Clerk.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

174. Age 23. Graduate of High School and I. C. S. Course in Civil Engineering. Has had four years' experience as instrumentman and inspector on construction. Desires position as instrumentman or inspector. Salary desired, $75 per month.

175. Age 28. Graduate of Tufts College, 1907, department of engineering, specializing in structural work. Has had about one and one-half years' experience in structural detailing and checking. Desires position for that class of work. Salary desired, $100 per month.

176. Age 19. One year in the Civil Engineering Course at Boston Y. M. C. A. Has had eight months' experience as rodman, chainman, and transitman. Desires position as rodman, chainman, or transitman. Salary desired, $40 per month.

177. Age 25. One year at Boston University as special student in A. B. subjects; one-half year in Tufts Engineering Course; evening engineering courses in Boston Y. M. C. A., and outside study, (includes construction.) Has had over three years' experience in engineering work which included preliminary and location surveys, and has run a transit for over a year. Desires position as transitman or draftsman. Salary desired, $70 per month.

178. Age 29. Graduate of Mass. Inst. of Technology, 1906. Assoc. Am. Soc. C. E. Has had seven years' experience; eight months' on railroad maintenance; three years with U. S. Reclamation Service, hydraulic work; one year as asst. supt. on construction of electrolytic cells; two years on construction of main supply canal for large irrigation project. Desires position on hydraulic work, future prospects more important than salary.

179. Age 21. Public school education and I. C. S. course in Civil Engineering. Has had no experience.

180. Age 19. High school education. Has had no experience.

LIST OF MEMBERS

ADDITIONS

Alexander, E. Porter.....32 Westland Ave., Boston, Mass.
Beola, Pablo .....25 Peterboro St., Boston, Mass.
Jerome, F. Jay.....32 Westland Ave., Boston, Mass.

CHANGES OF ADDRESS

COBURN, WILLIAM H. ..... Jefferson, Me.
HUNTINGTON, FREDERICK W. ..... 295 Central St., Lowell, Mass.
JEFFERS, ROBERT B. ..... 121 N. Fitzhugh St., Rochester, N. Y.
WOOD, GEORGE W. ..... 519 Dooly Bldg., Salt Lake City, Utah
MILNE, ALEXANDER P. ..... Box 237, Scarsdale, N. Y.

DEATHS

NELSON, GEORGE A. ..... Died June 3, 1913.

GEORGE BLINN FRANCIS

Member, Boston Society Civil Engineers
President, March 17, 1909, to March 16, 1910
Born January 31, 1857
Joined the Society, June 16, 1897
Died June 9, 1913

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Annual Report of Interstate Commerce Commission for 1912.

Commercial Trend of Producer-Gas Power Plant in United States. R. H. Fernald.

Conservation of Water Powers. Rome G. Brown.

Hurricanes of the West Indies. Oliver L. Fassig.

Library of Congress. Classification of Class Q, Science.

Repair and Maintenance of Highways. Laurence I. Hewes.

Wastes in Production and Utilization of Natural Gas. Ralph Arnold and Frederick G. Clapp.

State Reports

Massachusetts. Directors of Port of Boston. Report of Joseph A. Conry on Inspection of European Ports, 1912.

New Jersey. Annual Administrative Report of State Geologist for 1912.

New Jersey. Preliminary Report of Archaeological Survey, 1913.

New York. Annual Report of Public Service Commission for First District, Vol. II, for 1911.

City and Town Reports

Auburn, N. Y. Annual Report of Water Board for 1912.

Concord, N. H. Annual Report of Water Department for 1912.

Fitchburg, Mass. Annual Report of Water Commissioners for 1912.

Fitchburg, Mass. Semi-Annual Reports of Sewage Disposal Commission for 1912.

Gloucester, Mass. Annual Report of Water Commissioners for 1912.

London, England. Abstract of Accounts of Metropolitan Water Board for 1911-12.

Madison, Wis. Annual Report of Water Commissioners and City Engineer for 1912.

Medford, Mass. Annual Report of City Engineer for 1912.

Northampton, Mass. Annual Reports of City Officers for 1912.

Ware, Mass. Annual Report of Water Commissioners for 1912.

Worcester, Mass. Annual Report of Water Commissioner for 1912.

Miscellaneous

Agenda Pont-à-Mousson, 1913. Gift of H. D. Woods.

Municipal Engineers of the City of New York. Proceedings for 1912.

National Board of Fire Underwriters. Report of Committee on Lighting, Heating and Patents. List of Electrical Fittings, April, 1913.

LIBRARY COMMITTEE.

NEW ENGINEERING WORK

(Under this head a brief description of new engineering work contemplated or under construction will be presented each month. Engineers and contractors are requested to send descriptions of their work to the Secretary, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—METROPOLITAN PARK COMMISSION.—Anderson or Stadium Bridge. This bridge is a

three-span arch structure. The piers rest on piles driven to hard pan. Cofferdams of six inch sheet piling surround the foundation areas and serve as forms within which the foundation concrete is deposited.

At the water level the piers and abutments are surrounded with a belting course of Deer Isle granite. The arches are to be of reinforced concrete; the exposed ends of the arch rings, however, are to be of brick. The spandrel and wing walls are of concrete, the surface of which is to be pointed after the forms are removed. The corners and angles of the wall are brought up with brick work, and the walls at the top are finished with a belting course of cast concrete stones, which are bush hammered. The roadways are enclosed with parapets made of concrete and brick, with a cast concrete capstone.

At present the two piers and two abutment foundations are complete up to the skewbacks of the arches, and work is in progress on the arches.

Metropolitan Water and Sewerage Board.—Sewerage Works.—Work is in progress on Sections 30 and 70 of the new Mystic sewer, and Section 48A and 68 have just been let.

Directors of the Port of Boston.—Commonwealth Pier No. 5.—The completion of the easterly freight shed was so far advanced as to assure its use by the Hamburg-American Line for the arrival of the Cincinnati on May 31st.

The first floor is used largely for freight and the second for passengers. A great deal of temporary work was installed on the second floor to take care of the passengers. A portion of Northern Avenue was paved and temporary driving connections made from Northern Avenue to the easterly freight shed. One line of tracks was laid complete down the Pier connecting with the freight yard of the N. Y. N. H. & H. R. R. Work is being pushed for the early completion of the second line of tracks.

Work continues on the foundations for the headhouse and the retaining walls for the track to be built on the westerly portion of the pier.

Studies and plans are being made for the construction of a viaduct from Pier No. 5 to the Summer St. Extension connecting with the second story level of the pier.

Pier No. 6 (Fish Pier).—The construction of the relieving platform behind the easterly wall of the Fish Pier has been completed and filling on the platform behind the wall is about one-half finished. The coping stones on this wall will be raised and re-set to grade.

The contract for paving, draining and regulating Northern Avenue, a portion of D Street and the 100 ft. roadway down the center of Pier No. 6 has been awarded to the Northern Construction Co.

East Boston.—The making of water jet borings and rod soundings on the East Boston area has been begun. Up to the first of the month 2074 lin. ft. of wash borings and 646 lin. ft. of rod soundings have been made.

Dry Dock.—Studies and designs are being made for the proposed dry dock. Plans are being made for a bulkhead to enclose the larger portion of the dry dock site and plans are being prepared for dredging a new entrance to the reserved channel preliminary to beginning work on the dry dock itself.

Boston Transit Commission.—Section 1 of the Boylston-street Subway, extending from Kenmore street to Massachusetts avenue, is substantially completed. The ornamental concrete balustrade around the incline on Commonwealth avenue is being constructed by the Emerson and Norris Co. The Massachusetts-avenue Station, part of Section 2, extending from the corner of Massachusetts avenue and Newbury street under the site of the old Cab Company building and under the rear of several stables fronting on Newbury street, is under construction. The remainer of Section 2, extending to Hereford street, is substantially completed. Section 3, from the east line of Hereford street to the Boston Public Library, is completed. The contract for paving Boylston street between Hereford and Exeter streets with bitulithic has been awarded to the Warren Brothers Company. Work is under way on Section 4, from the Public Library to Arlington street. Substantially all the steel sheet piling around the station at Copley square has been driven to grade. The side-walls of this section are in place between a point midway between Dartmouth and Clarendon streets to 370 feet east of Berkeley

street. The arch is being put in place at Berkeley street and at Clarendon street and backfilling and paving has been begun. The contractor for Sections 1, 2, 3 and 4 of the Boylston-street Subway is The Hugh Nawn Contracting Co.

Section A of the Dorchester Tunnel, in Winter street, is completed, with the exception of closing up the last hatchway. The extension work under the Washington-street Tunnel and under the Summer-street Lobby is substantially completed. The Coughlan & Sheils Co. is the contractor.

Section B of the Dorchester Tunnel includes the proposed station in Summer street which will extend from near Washington street east to Arch street. The work of underpinning the buildings on both sides of Summer street along the line of the work is in progress, the north side being nearly completed. The excavation for the staircase and pump well in Hawley street has been made and the concrete for the sump and a part of the sidewalls has been placed. The contractor is The Hugh Nawn Contracting Co.

On the extension of the East Boston Tunnel the construction of a part of the station under and near the present station in Scollay square between Brattle street and Howard street is in progress. Construction is also going on between Howard street and Stoddard street, the buildings being supported over the excavation on steel beams. Isaac Blair & Co. Inc. is the contractor.

City of Boston.—Public Works Department, Highway Division, Paving Service.—Work is in progress on the following streets:—Brainerd Road, from Harvard Avenue to Warren Street, tar-macadam roadway; Clement Avenue from Stratford Street to Park Street, tar-macadam roadway; Maxfield Street from LaGrange Street to Bellevue Street, tar-macadam roadway; South Street, from Robert Street to Centre Street, edge, gutters, crosswalks and artificial stone; Tyndale Street from Walworth Street to Guernsey Street, tar-macadam; Barrymore Street, from Blue Hill Avenue to Harvard Street, tar-macadam; Bentham Road from Draper Street to Robinson Avenue, tar-macadam; Brookview Street, from Blue Hill Avenue to Harvard Street, tar-macadam; Dawes Street from East Cottage Street to Willis

Street, tar-macadam; Dumas Street from Willowwood Street to Mascot Street, tar-macadam; Evelyn Street, from Blue Hill Avenue to Norfolk Street, edge, gutters, artificial stone walks; Lithgow Street from Washington Street to Talbot Avenue, tar-macadam; Mascot Street from Mountain Avenue to Ballou Street, tar-macadam; Mascoma Street, from Quincy Street to Lawrence Avenue, tar-macadam; Milton Avenue from Norfolk Street to Evans Street, edge, gutters, artificial stone walks; Playstead Road from Savin Hill Avenue to Springdale Street, tar-macadam; Tucker Street from Woodrow Avenue to Callender Street, tar-macadam; Washington Street from Talbot Avenue to Blue Hill Avenue, wood block pavement; Morton Street from Harvard Street to Canterbury Street, filling and grading; Winthrop Street, from Blue Hill Avenue to Brook Avenue, edge, gutters, artificial stone walk; Lovering Place from Washington Street to Harrison Avenue, asphalt, and Union Park Street from Washington Street to Harrison Avenue, asphalt.

New York, New Haven & Hartford Railroad.—Clinton, Mass. Elimination of Grade Crossings. Work on the Boston & Maine R. R. now in progress is the erection of a new concrete freight house and freight yard, and building a new street.

Boston, Mass.—On the corner of Stuart and Clarendon Streets in the Back Bay, Benjamin Fox, Inc., is constructing for the Mass. Auto Club a seven-story and basement club house and garage to house over 400 automobiles for its members. The building, 120x150, seven stories and a basement, is to be of reinforced concrete construction, the outside walls being faced with waterstruck brick and terra cotta. The building is to be fully equipped with complete repair and overhauling department, vacuum cleaners, compressed air, artesian well, three fast freight and a passenger elevator.

Plymouth, Mass.—Benjamin Fox, Inc., is constructing for the Plymouth Cordage Co. at North Plymouth, Mass., a four-story and basement fireproof warehouse of reinforced concrete throughout. The building is 100x400 ft. divided by double terra cotta fire walls each 100 ft. in length. Each section to be provided with a freight elevator and all windows are to be steel glazed with wire glass; all doors to be metal covered.

Cambridge, Mass.—On the Cambridge shore of the Charles River, near the Cottage Farm Bridge, the Aberthaw Construction Company is building a 5-story manufacturing building for the Gray & Davis Co., manufacturers of automobile starters and lamps. The design is by Monks & Johnson, engineers. The building is of flat slab mushroom construction throughout. The outside is partly of concrete and partly of tapestry brick work carried on the concrete frame. All windows are of rolled steel. The floors are to be of cement finish throughout and the building is in general a first class reinforced concrete manufacture. The use of corrugated iron for floor forms is interesting, and the general organization of the job is worth looking over.

For the Boston Woven Hose & Rubber Company, the Aberthaw Construction Company is building a four-story reinforced concrete building, John O. DeWolf, engineer. The interesting feature of this particular work is some very long roof girders. Work is now being done on the first floor.

Benjamin Fox, Inc., is building additions to the plants of the Hathaway Bakery in North Cambridge, and the Standard Oil Co. in East Cambridge and some 800 feet of retaining wall in East Boston.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Battleship RIVADAVIA for the Argentine Republic.
U. S. Torpedo Boat Destroyer DUNCAN.
U. S. Submarines K-1, K-2, K-5 and K-6.
U. S. Battleship NEVADA.
U. S. Submarine Tender FULTON.
U. S. Submarines L-1, L-2, L-3, L-4, and M-1.
U. S. Torpedo Boat Destroyer CUSHING.
Oil Tanker RICHMOND for the Standard Oil Co.
Four Car Floats for the N. Y., N. H. & H. R. R. Co.
Steam Trawlers WAVE, BILLOW and BREAKER for the Bay State Fishing Co.
Molasses Tanker AMOLCO for the Boston Molasses Co.

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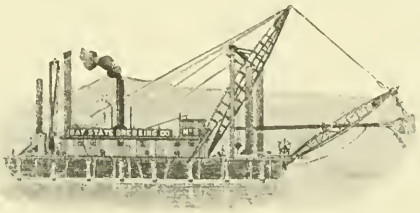

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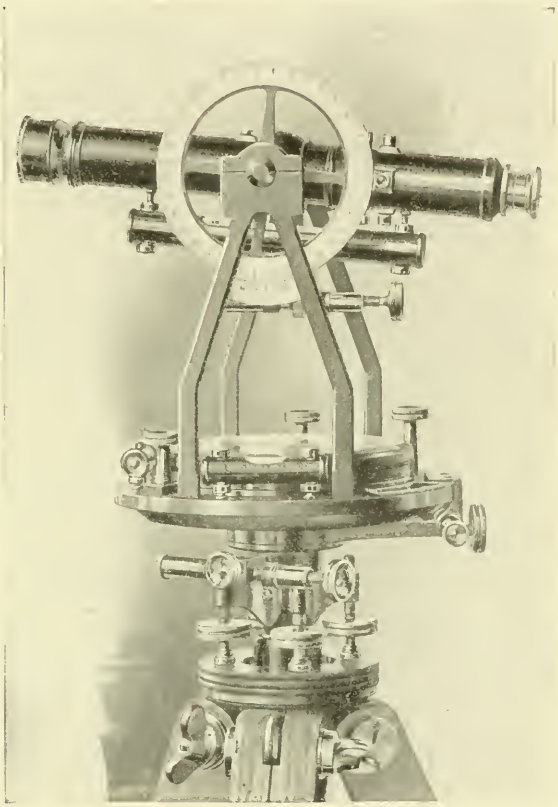

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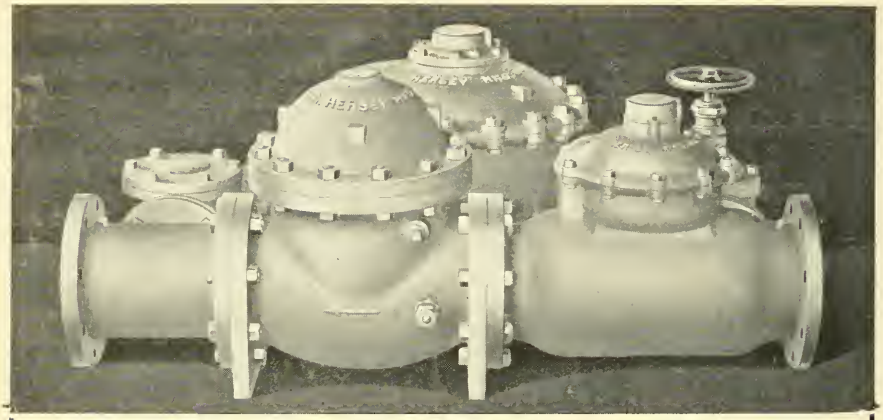

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MONTHLY BULLETIN.

NEW SERIES. SEPTEMBER, 1913 No. 74

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, September 17, 1913, at 7.30 o'clock P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Mr. Leonard C. Wason will read a paper entitled "The Problems of a Contractor."

S. E. TINKHAM, *Secretary*.

APPLICATIONS FOR MEMBERSHIP

[September 10, 1913]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

MOORE, CHESTER ARTHUR, Chelsea, Mass. (Age 29, b. Gloucester, Mass.) Student in engineering courses of Boston Young Men's Christian Association, Evening School, for four years, 1905-09. From October, 1909, to present date has been employed by Barrows & Breed of Boston as rodman, transitman and computer. Refers to C. B. Breed, H. K Barrows, W. H. Sawyer, E. C. Sherman and G. P. Soutar.

STUETZEL, CARL, JR., Boston, Mass. (Age 32, b. Boston, Mass.) While attending public schools, spent vacations working in office of architect and engineer. Worked for one year in architect's office, after leaving school. In 1898 entered employ of City of Boston, Architect Division of Engineering Dept., as architectural draftsman. Transferred to Plan Division of Building Dept. as plan examiner in 1906. From 1908 to February, 1913, held position of Building Inspector. At present time in charge of Plan Division, Building Dept., City of Boston. Refers to C. R. Gow, J. B. Graham, H. W. Hayward, W. F. Kearns, and J. R. Worcester.

WELLS, FRANCIS S., Malden, Mass. (Age 42, b. Paterson, N. J.) Attended the public schools of Paterson. From 1891 to 1893 was with Benjamin Eastwood of Paterson as draftsman on textile machinery; from 1895 to 1907 was with G. W. & F. Smith Iron Co. of Boston as draftsman and checker; since 1907 has been with the Boston Bridge Works as draftsman and assistant engineer. Refers to H. M. Chadwick, L. S. Cowles, J. C. Moses, and R. H. Sutherland.

MINUTES OF MEETING

JUNE MEETING OF THE SOCIETY

NAHANT, MASS., June 25, 1913.—A regular meeting of the Boston Society of Civil Engineers was held this evening at the Hotel Brenton, Bass Point, Nahant, at 8.45 o'clock. President Frederic H. Fay in the chair, 36 members and visitors present.

By vote the reading of the record of the last meeting was dispensed with, and it was approved as printed in the June Bulletin.

The Secretary reported for the Board of Government that it had elected the following to membership in the grade of member:

Messrs. Almon L. Fales, (transferred from membership in the Sanitary Section), James Joseph Tobin, (transferred from Junior), and W. Quintin Williams.

The Secretary announced the deaths of George A. Nelson, who died June 3, 1913, and Past President George Blinn Francis, who died June 9, 1913.

By vote the President was requested to appoint committees to prepare memoirs. He has appointed as the Committee to prepare a memoir of George A. Nelson, Messrs. Richard A. Hale and George Bowers, and as the Committee to prepare a memoir of Past President George B. Francis, Messrs. John W. Ellis and Edwin J. Beugler.

The President stated that he had appointed as tellers to canvass the letter ballot on the withdrawal of the Society from the Association of Engineering Societies, Messrs. Edward W. Howe and John N. Ferguson. Mr. Howe reported that 430 ballots had been received of which 46 had been recalled, leaving 384 ballots counted. Of these 226 had voted "yes" and 158 had voted "no" on the recommendation of the Board of Government, "That the Boston Society of Civil Engineers withdraw from the Association of Engineering Societies at the end of the present calendar year, and that thereafter the papers presented to the Society be published in an independent journal."

Prof. Charles B. Breed then gave a very interesting talk on the History and Progress of the Elimination of Grade Crossings at Lynn, Mass., which was illustrated by a large number of lantern slides.

Adjourned.

S. E. Tinkham, *Secretary.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

181. Age 24. Graduate of Mass. Inst. of Technology in Sanitary Course. Has worked several summers as rodman, transitman and draftsman with civil engineer, and for five months with heating and ventilating engineer. Has had one year's experience in mechanical drafting. Desires any position for which he is qualified. Salary desired, at least $60 per month.

182. Age 22. Graduate of Technical High School, also of courses in surveying and railroad engineering at Boston Y. M. C. A. Has worked eight months as draftsman and transitman for Boston and Maine R. R. and two months with civil engineer as draftsman on land and road construction work. Is employed temporarily as rodman with Boston and Albany R. R. Desires position as draftsman or transitman with good engineer, where experience obtained will be of value. Salary desired, $60 per month.

183. Age 24. Graduate of Mass. Inst. of Technology, 1913. Worked as rodman with Directors of Port of Boston during summer of 1912. Salary desired, $65 per month.

184. Age 17. Grammar school graduate and I. C. S. student. Has had no experience. Is at present employed as telephone operator. Desires position as chainman or rodman. Salary desired, $30 with or $40 without expenses.

185. Age 23. Graduate of College of Civil Engineering, Cornell University, 1913. Was with State Roads Commission of Maryland for six months during 1911, and during summer of 1912 was employed as inspector by the Commission. Prefers work on construction. Salary desired, $60 per month.

186. Age 23. Graduate of Dartmouth College Civil Engineering School, 1913. Has had some experience as rodman. Position desired as rodman, transitman or draftsman. Salary desired, $13 per week.

187. Age 23. Grammar and high school education, and evening courses in surveying and reinforced concrete. Has

had one year's experience as rodman on topographical work and city work; also three and one-half years' experience as rodman and leveler with construction engineer of N. Y., N. H. & H. R. R. Has had office experience on estimates and calculations, and considers himself a fair draughtsman. Is at present employed as leveler. Desires position as transitman or work along similar lines. Minimum salary desired, $80 per month.

188. Age 23. High school graduate. Has had about two years' experience as rodman and transitman, mostly in field work, surveying, etc. Has been for about one and a half years with the Boston and Maine R. R., as rodman and draughtsman in maintenance, field and office work. Desires position as transitman with engineer or rodman with railroad. Railroad work preferred.

189. Age 24. Graduate of Engineering Dept. of Harvard University in 1910. During 1910-11 was employed as rodman with N. Y., N. H. & H. R. R. on electrification work in New York. During 1911-12 was with Turner's Falls Co., Turner's Falls, Mass., on water power development, designing, and in charge of field work. During 1912-13 has been resident engineer with N. Y., N. H. & H. R. R. in charge of preliminary surveys for electrification between Boston and Providence, the construction of which has been postponed. Desires position with field party on surveys or construction work, or as inspector on construction, or as draughtsman; position in charge of party preferred. Minimum salary desired, $75 per month.

150. Age 23. Spent two years in high school. Has worked for two years for Fore River Shipbuilding Co. and one year at Lawley's ship yard. Is at present employed as draftsman. Desires position as mechanical draftsman, in Boston. Salary desired, $15 per week.

LIST OF MEMBERS

ADDITIONS

Baker, Frank A. ....9 Braemore Road, Boulevard, P. O., Boston, Mass.
Dorsey, Thomas F. .....93 Clarkson St., Dorchester, Mass.

EATON, CHARLES W. .....309 East Broadway, Haverhill, Mass.
WILLIAMS, W. QUINTIN,
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ARMSTRONG, KENNETH P. .....Wayside Inn, Gray, Maine
CUNNINGHAM, J. EARL .....3 Spruce St., Boston, Mass.
FIELDING, WILLIAM J. .....c/o Morgan Engrg. Co., Memphis, Tenn.
FOGG, BENJAMIN G. .....Milton, N. H.
FRENCH, EDMUND M. .....209 Montague St., Brooklyn, N. Y.
HOLLIS, PROF. IRA N. ....Worcester Polytechnic Inst., Worcester, Mass.
HORNE, HAROLD W. ....Farmington, Conn.
KIMBALL, JOSEPH H. .....414-415 Louisville Trust Co., Louisville, Ky.
KNOWLTON, HOWARD S. .....136 Lexington Ave., Cambridge, Mass.
RICE, JAMES .....The Plaza, 5th Ave. at Central Park, New York, N. Y.
SAVILLE, THORNDIKE, 26 College Hall, Dartmouth College, Hanover, N. H.
STRADLING, DAVID W. .....549 Fullerton Parkway, Chicago, Ill.
STREET, LEONARD L. .....32 Salcombe St., Dorchester, Mass.
TARBETT, RALPH E. ..Marine Hospital, 3rd and Kilgour Sts., Cincinnati, O.
TREFETHEN, ERNEST M.
c/o N. Y. State Highway Comm., 55 Lancaster, St., Albany, N. Y.
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LIBRARY NOTES

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U. S. Government Reports

Absorption of Creosote by Cell Walls of Wood. Clyde H. Teesdale.

Accidents from Falls of Roof and Coal. George S. Rice.

Accidents from Mine Cars and Locomotives. L. M. Jones.

Alaskan Coal Problems. Walter L. Fisher.

Analysis of Black Powder and Dynamite. Walter O. Snelling and C. G. Storm.

Annual Report of Commissioner of Education for 1911-12. 2 vols.

Annual Report of Mine Inspector for Territory of Alaska for 1911.

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Consumption of Firewood in U. S. Henry S. Graves.

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NEW ENGINEERING WORK

(Under this head a brief description of new engineering work contemplated or under construction will be presented each month. Engineers and contractors are requested to send descriptions of their work to the Secretary, 715 Tremont Temple, Boston, before the first of each month.)

United States Government.—NAVY DEPARTMENT.—*Navy Yard, Boston.*—Work is now in progress or new work is contemplated as follows:—

(*a*) 90,000 gals. gasolene storage tank with pumps and distributing pipes to piers. Recently completed.

(*b*) 2,000,000 gals. fuel oil tank being advertised. Work will be in progress probably inside a month on foundations.

(*c*) New Naval Hospital buildings, Chelsea, Mass. Recently completed.

(*d*) Two magazine buildings at Naval Station, Hingham. Under construction.

Commonwealth of Massachusetts.—METROPOLITAN PARK COMMISSION.—Work of construction of Anderson Bridge is in progress. General road repairs.

METROPOLITAN WATER AND SEWERAGE BOARD.—SEWERAGE WORKS.—Work on Sections 68 and 70, new Mystic Sewer, at Winchester, is in progress.

Massachusetts Highway Commission.—State highway construction is in progress in the following cities and towns:—Abington, Becket, Easthampton, Lanesboro, Littleton, Mashpee, North Adams, Northampton, North Andover, Oxford, Pittsfield, Revere, Sandwich, Seekonk, Sheffield, Sterling, Taunton, West Boylston, Woburn, Dracut and Methuen.

The North Andover construction consists of a six-inch concrete surface. Nearly all others are macadam with the upper two inches filled with either tar or asphalt.

Reinforced concrete bridges of considerable size are under construction in Charlemont, Florida and Wareham.

Directors of the Port of Boston.—Commonwealth Pier No. 5.—The work continues principally on the foundations for the west freight shed and the headhouse, and recently the erection of the steel frame for the headhouse was begun. Elevators have been installed in the east freight and passenger sheds.

Preliminary work has recently been commenced on foundations for viaduct to connect Summer Street with the second floor of Pier No. 5.

Fish Pier (Pier No. 6).—In connection with construction of the fish pier, the paving of Northern Avenue, as well as the east side of the pier itself are being done by the Northern Construction Company and also they have the contract for the underground piping work on the Pier, drains, sewers, and water pipes.

Dry Dock.—A contract has been let to H. P. Converse & Company for the construction of 10,700 linear feet of bulkhead which is to enclose two areas to fill land on each side of the proposed site for the dry dock, and the filling for these areas is to be taken largely from the excavation of the Reserved Channel.

Reserved Channel.—The Reserved Channel is to be dredged for a distance of about 4,000 feet to a depth of 30 feet below mean low water at its outer end connecting with the main ship channel. The channel will be approximately 300 feet wide at the bottom.

East Boston.—The making of water jet borings and rod soundings on East Boston Flats is practically finished.

The taking of the Eastern Railroad Pier is under consideration.

Dredging.—*Improving Minor Channel.*—The dredging of the channel has been made at the Winthrop Yacht Club, Jeffries Point Yacht Club, and at the Quincy Yacht Club. It is contemplated to improve the channel in the vicinity of the Elks' Club House, Pleasant Park Yacht Club and to dredge in Dorchester Bay.

Commonwealth Pier No. 5.—Bids are asked for the dredging of approaches to Commonwealth Pier No. 5 covering the area between the end of this pier and the United States Harbor line, which area is to be dredged to a depth of not less than 40 feet below mean low water. Bids are to be opened on September 10, 1913.

Boston Transit Commission.—Section 1 of the Boylston-street Subway, extending from Kenmore Street to Massachusetts Avenue, including the ornamental concrete balustrade around the incline at Kenmore Street, is substantially completed.

Work is progressing on the Massachusetts-avenue Station, part of Section 2, between Massachusetts Avenue and Public Alley No. 444. The stables in the rear of Newbury Street are being supported and the subway construction carried on beneath. The remainder of the station is being constructed in the open. A contract has been let to the A. Varnerin Co. for the construction of a stable and garage on Boylston Street, near the Massachusetts-avenue Station, to take the place of the stable removed on account of the subway. The balance of Section 2, extending to Hereford Street, is completed.

Section 3, from the east line of Hereford Street to the Public Library, is completed. The street surface has been paved with bitulithic and the contractor for this section is engaged in restoring the sidewalks.

Section 4, between the Public Library and Arlington Street, is completed from the middle of Copley Square to 300 feet east of Berkeley Street. Construction work on the station at Copley Square and on the remainder of the section is in progress.

The contractor for Sections 1, 2, 3 and 4 of the Boylston-street Subway is the Hugh Nawn Contracting Co.

Section B of the Dorchester Tunnel includes the proposed station in Summer Street, which will extend from near Washington Street east to Arch Street. The work of underpinning the buildings on Summer Street along the line of the work is nearly completed. Concrete sidewalls and steel

platform columns and beams are being put in and the new cast iron sewers are being laid. The contractor is the Hugh Nawn Contracting Co.

On the Extension of the East Boston Tunnel the construction of a part of the station under and near the present station in Scollay Square between Brattle Street and Howard Street is in progress. The tunnel has been practically completed from the southerly line of Howard Street to Stoddard Street. Isaac Blair & Co., Inc., is the contractor.

City of Boston.—Public Works Department, Highway Division, Paving Service.—Work is in progress on the following streets:—Orient Avenue, from Walley Street to Tower Street, tar macadam; Emmons Street, from Paris Street to Chelsea Street, tar macadam; Franklin Street, from Lincoln Street to Easton Street, artificial stone sidewalks; Washington Street (Brighton), from Cambridge Street across Market Street, bitulithic pavement; Tyndale Street, from Walworth Street to Guernsey Street, tar macadam; Centre and South Streets, from Green Street to Keyes Street, bitulithic pavement; Cliftondale Street, from Norfolk Street to Kittredge Street, asphalt macadam; Montclair Avenue, from Centre Street to Fletcher Street, tar macadam; Cohasset Street, from Corinth Street to Albano Street, artificial stone sidewalks; Park Street, from Clement Avenue to Anawan Avenue, artificial stone sidewalks; Conway Street, from South Street to Fairview Street, artificial stone sidewalks; Walworth Street, from Belgrade Avenue to Brooks Street, tar macadam; Elmo Street, from Blue Hill Avenue to Eric Street, artificial stone sidewalks; Woolson Street, from Blue Hill Avenue to Norfolk Street, tar macadam; Morton Street, from Harvard Street to Canterbury Street, filling; Hancock and Bowdoin Streets, from Winter Street to Hancock Street, brick block; Mascoma Street, from Quincy Street to Lawrence Avenue, tar macadam; Don Street, from Woodrow Avenue to Talbot Avenue, tar macadam; Walnut Street, from Ericsson Street to Franklin Street, artificial stone sidewalks; Bernard Street, from Harvard Street to Kerwin Street, artificial stone sidewalks; Dor-

chester Avenue, from Ralston Street about 140 feet southerly, wood block; Nightingale Street, from Wales Street to Talbot Avenue, artificial stone sidewalks; Minot Street, from Charlemont Street to Adams Street, artificial stone sidewalks; Bynner Street, from South Huntington Avenue to Day Street, artificial stone sidewalks; Calumet Street, from Parker Hill Avenue to Hillside Street, tar macadam; Howard Street, from Gerard Street to Magazine Street, edge, gutters; Ruggles Street, from Washington Street to Shawmut Avenue, wood block; Warren Avenue, from Berkeley Street to Columbus Square, wood block; Washington Street (Dorchester), from Blue Hill Avenue to Talbot Avenue, wood block; Westville Street, from Draper Street to Geneva Avenue, artificial stone sidewalks; Evelyn Street, from Blue Hill Avenue to Norfolk Street, tar macadam; Mountfort Street, from Audubon Road to St. Mary's Church, asphalt macadam.

New York, New Haven & Hartford Railroad.—Clinton, Mass. Elimination of Grade Crossings. Work on the Boston & Maine R. R. now in progress is the building of a subway for pedestrians at Sterling Street and the cutting down of the former grade of the Railroad which involves the sloping of a bank about 100 feet high opposite the transfer yard.

Work on the New Haven is the cutting down of a portion of High Street and the building of a temporary trestle to cross the New Haven Main line at its present low grade and the filling for the permanent embankment by the Railroad Company.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

Battleship RIVADAVIA for the Argentine Republic.
U. S. Battleship NEVADA.
U. S. Submarine Tender FULTON.
Nine U. S. Submarine Boats.
U. S. Torpedo Boat Destroyer CUSHING.
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Molasses Tanker AMOLCO for the Boston Molasses Co.
General Cargo Steamers ATLANTIC and PACIFIC, for the Emery Construction Co.

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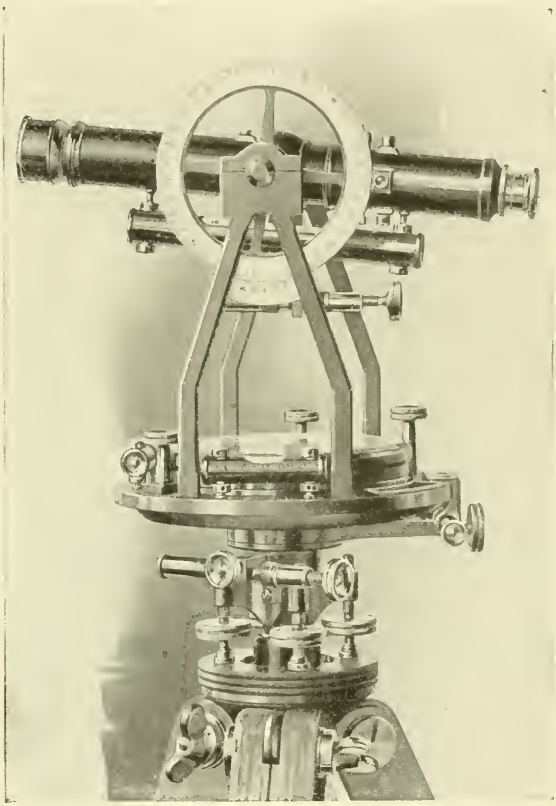

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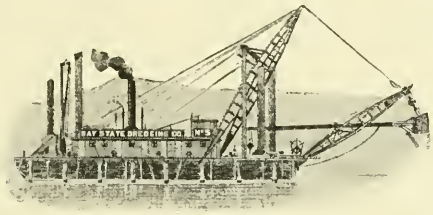

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BOSTON SOCIETY OF CIVIL ENGINEERS
ORGANIZED JULY 3, 1848

MONTHLY BULLETIN.

NEW SERIES. OCTOBER, 1913 No. 75

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, October 15, 1913, at 7.30 o'clock P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Mr. John L. Howard will give an account of the work of the Directors of the Port of Boston. The talk will be illustrated with lantern slides.

S. E. TINKHAM, *Secretary.*

MEETING OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

At Worcester, Oct. 17, 1913

The American Society of Mechanical Engineers extends a most cordial invitation to the members of this Society to participate in its visit to Worcester on Friday, October 17, 1913.

A copy of the circular giving the details of the proposed visit is sent with this Bulletin. A post-card is also sent which you are requested to fill out and mail *at once*, if you intend accepting the invitation.

NOVEMBER MEETING OF THE SOCIETY

At the regular meeting to be held on Wednesday, Nov. 19, 1913, Mr. John W. Alvord of Chicago, will read a paper entitled "Engineering Lessons from the Ohio Floods." The paper will be illustrated by lantern slides.

APPLICATIONS FOR MEMBERSHIP

[October 8, 1913]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Armstrong, Kenneth Potter, Gray, Maine. (Age 25, b. Somerville, Mass.) Graduate of Massachusetts Inst. of Technology, Civil Engineering Course, in 1910. From July to September, 1909, was with Charles River Basin Commission; from August to September, 1910, with Boston Elevated Railway Co., dept. of surface lines; from September to December, 1910, with Metropolitan Water and Sewerage Board; from March to April, 1911, with Fore River Shipbuilding Co., yard dept.; from April, 1911 to June, 1913, with Durkee, White & Towne, Springfield, Mass., on railroad and street railway work in western Massachusetts; July to August, 1913, with Boston Elevated Railway Co., dept. of surface lines; August, 1913, to date, resident engineer on construction of Portland, Gray & Lewiston R. R. Elected a Junior, April 19, 1911, and now desires to be transferred to grade of Member. Refers to C. B. Breed, B. W. Ellis, A. L. Plimpton, B. A. Rich, and C. M. Spofford.

Hoyt, Laurence Brackett, Melrose, Mass. (Age 22, b. Greenland, N. H.) Graduate of Mass. Inst. of Technology, Civil Engineering Course, in 1913. During summer of 1911, served as rodman with Bos-

ton Elevated Railway Co., Dept. of Elevated and Subway Construction; during summer of 1912, rodman with Power Construction Co., Hoosac Tunnel, Mass., from May 30 to July 1; and from July 1, to Sept. 15, rodman and instrumentman with Directors of Port of Boston. Certified as instrumentman by State Civil Service Commission. Is now assistant at Mass. Inst. of Technology. Refers to C. B. Breed, R. B. Jeffers, Dwight Porter, and C. M. Spofford.

Nawn, Hugh, Roxbury, Mass. (Age 25, b. Roxbury, Mass.) Educated in public and private schools of Boston; prepared for college at Roxbury Latin School; graduated from Harvard University in 1910, with degree of S. B. Has since been general contractor in charge of construction work, and is now in charge of construction of Section 4, Boylston St. Subway, and Section B., Dorchester Tunnel. Elected a Junior, Sept. 21, 1910, and now desires to be transferred to grade of Member. Refers to I. N. Hollis, H. J. Hughes, L. J. Johnson, and L. L. Street.

Reilly, Leo Bayles, Roxbury, Mass. (Age 28, b. Malden, Mass.) Graduate of Harvard University in 1906, with degree of A. B., and of Boston College in 1913, with degree of M. A. From 1906 to 1907 rodman with Boston Sewer Dept.; during 1907 rodman with Boston Transit Commission; from 1907 to 1912 with J. R. Worcester & Co., as draughtsman and assistant; and from 1912 to date with Bay Street Railway Co. as bridge engineer and engineer on grade crossings. Refers to J. E. Carty, F. H. Fay, E. E. Pettee, S. H. Thorndike, S. E. Tinkham, and J. R. Worcester.

Yates, Sheldon Smith, Cambridge, Mass. (Age 26, b. Yonkers, N. Y.) Graduate of Yale College in 1910, with degree of B. A., and of Harvard University in 1912, with degree of M. C. E. During summers of 1903-06 with L. S. & M. S. R. R. as rodman on construction, including Willoughby Arch Bridge; 1909, with Tomkins Cove Stone Co. for two months as rodman on reconstruction of plant; July and August, 1910, draftsman for American Bridge Co.; 1911-12, student at Harvard while doing work in valuation and structural design for George F. Swain and others; 1912-13, instructor in Civil Engineering at Harvard University and draftsman, etc., for the Boston Bridge Works, and others; summer of 1913, assistant engineer for New York Municipal Railway Corp'n, in charge of concrete design of Sea Beach R. R.; at present time instructor in Civil Engineering in charge of structural design drafting rooms at Harvard University. Refers to F. H. Fay, H. J. Hughes, J. C. Moses, J. P. Snow, and G. F. Swain

MINUTES OF MEETING

SEPTEMBER MEETING OF THE SOCIETY

Boston, Mass., September 17, 1913.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 8 o'clock. President Frederic H. Fay in the chair, 75 members and visitors present.

By vote the reading of the record of the June meeting was dispensed with and it was approved as printed in the September Bulletin.

The Secretary reported for the Board of Government that it had elected Charles William Eaton a member of the Society.

He also reported that, at a meeting of the Board held July 7, 1913, a communication was received from His Honor, the Mayor of Boston, requesting the Society to name a person who shall become a candidate for appointment to the Boston Board of Appeal, as provided under Chapter 550 of the Acts of 1907. As the appointment was required to be made before August 1, 1913, the Board acted on the matter and named Mr. Joseph R. Worcester as the Society's candidate.

The Secretary announced the death of Edward A. Haskell, a member of the Society, which occurred on August 24, 1913, and by vote the President was requested to appoint a committee to prepare a memoir. He has appointed as that Committee Messrs. Luis G. Morphy and John B. Russell.

Mr. Leonard C. Wason then read the paper of the evening entitled "The Problems of a Contractor." The paper was discussed by Messrs. A. W. Parker, C. T. Fernald, S. E. Thompson and E. S. Larned.

(Adjourned) S. E. Tinkham, *Secretary.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing employees to members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available,* giving in each case detailed information in relation thereto.

Positions Available

013. Four rodmen wanted at salaries of $40 per month and expenses when away from Portland. Apply to Engineer of Construction, Maine Central Railroad Co., Portland, Maine.

014. Man wanted to work partly as rodman and partly as transitman on sewerage construction work. Salary $12 to $15 per week depending on experience and ability. Apply to Chief Engr., Sewage Disposal Commissioners, 352 Main St., Fitchburg, Mass.

Men Available

168. Age 35. Studied three years at Mass. Inst. of Technology. Has had fifteen years' experience in general practice, including twelve years on railroad work, in charge of preliminary surveys, calculation, trackwork and construction work. Experience also includes sewer work. Salary desired, $90 per month.

177. Age 25. Spent one year at Boston University as special student in A. B. subjects, and one-half year at Tufts College in Engineering Course. Has had over three years' experience in engineering work, mostly on B. & M. R. R., including preliminary and location surveys, maintenance of way, etc. Has had over a year's experience in running a transit, and two and one-half months as a draftsman. Desires position as transitman or draftsman. Salary desired, $75 per month.

190. Age 42. Graduate of Sheffield Scientific School, Yale University, in 1894. Has had eighteen years' experience as draftsman, including two years with Berlin Iron Bridge Co., one year with American Bridge Co., and fifteen years with New England Structural Co.. During past eight years has been chief draftsman for New England Structural Co. on steel buildings,

bridges, etc., and in charge of from twenty to forty men. Desires position as designing engineer. Salary desired $250 per month.

192. Age 22. High school graduate and has studied one year at Boston Franklin Union. Has had one year's experience as chainman for Boston and Maine R. R. and can use transit and level and do some drafting. Desires position as rodman. Salary desired $12 per week.

193. Age 25. Graduate of Mass. Inst. of Technology, Civil Engineering Course, in 1910. Has had about four years' experience including work as rodman with Charles River Basin Commission and Boston Elevated Railway Co.; as transitman with Metropolitan Water and Sewerage Board on pipe line and concrete drain construction; as draftsman in charge of survey and map of yard with Fore River Shipbuilding Co.; and as transitman and chief of party on electric and steam railroad location, construction and maintenance. For more than a year was principal assistant to resident engineer for Worcester Consolidated St. Ry., and is now resident engineer on construction of Portland, Gray & Lewiston R. R. Will be at liberty about Dec. 1. Desires any position for which experience qualifies him. Salary desired $100 per month with or $125 without expenses.

194. Graduate of Mass. Inst. of Technology in 1908, Civil Engineering Course, Degree of B. S. As undergraduate had experience as transitman on municipal and railroad work; from August, 1908, to April, 1910, with Hazen & Whipple of New York City as draftsman on water supply and purification projects; from April, 1910, to present time draftsman with Engineering Dept. of Oregon Short Line Railroad. Has had charge of drafting room force ranging from ten to twenty in connection with preparation of detail estimates for some thirty millions of second track. Salary desired at least $1500 per year.

195. Educated in Medford public schools and spent two years at Phillips-Exeter and two years at Stevens Institute of Technology, Hoboken, N. J. Has had seven years' experience

on engineering and construction work, including railway, highway and canal work. Has worked as chainman, rodman, topographer, leveler, and transitman, and as assistant engineer in charge of reclamation and drainage work and on general land surveys. Desires position as instrumentman or as assistant engineer on construction or general survey work. Salary desired $1200 per year.

196. Age 41. Graduate of Worcester Polytechnic Institute, Civil Engineering Course, in 1894. Experience includes six years on sewer work as inspector and engineer, four years as resident engineer on street railway car houses, power stations and equipment; two and one-half years as designer and construction superintendent on electric light and gas plants; one and one-half years as chief draftsman, designer and construction engineer on power stations and equipment with Bay State Street Railway Co.; two years with Stone & Webster Engineering Corp'n; as mechanical designer and engineer on power station work; also hydraulic, heating and ventilating work. Desires any position for which this experience qualifies him. Salary desired, at least $1500 per year.

LIST OF MEMBERS

CHANGES OF ADDRESS

BETTON, JAMES M. .....Commonwealth Ave., Mount Vernon, N. Y.
BROCK, NATHAN S. .....122 Park St., Brookline, Mass.
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CLAPP, WILFRED A. .....70 Ramona Ave., Oakland, Calif.
COBURN, WILLIAM H. ..... 1254 Commonwealth Ave., Allston, Mass.
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REW MORSE W. .....c/o J. E. Barlow, City Hall, Cincinnati, Ohio
SAVILLE, THORNDIKE .....2 Sanborn House, Hanover, N. H.
SYMONDS, HENRY A. .....70 Kilby St., Boston, Mass.

DEATHS

HASKELL, EDWARD A. .....Died August 24, 1913.

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Alunite in Arizona and Nevada. Frank C. Schrader.

Analyses of Coal Samples from Various Fields of U. S.

Annual Reports of Reclamation Service for 1907-1912, 5 vols.

Apparatus for Gas-Analysis Laboratories at Coal Mines. George A. Burrell and Frank M. Seibert.

Cementing Process of Excluding Water from Oil Wells in California. Ralph Arnold and V. R. Garfias.

Cerrillos Coal Field, Santa Fe County, New Mexico. Willis T. Lee.

Coal and Lignite in Boise and Cassia Counties, Idaho. C. F. Bowen.

Coal in Tertiary Lake Beds of Southwestern Montana. J. T. Pardee.

Coal Resources of Cowlitz River Valley, Washington. A. J. Collier.

Coaldale Coal Field, Esmeralda County, Nevada. J. H. Hance.

Coal-Mine Accidents in U. S., 1896-1912. Frederick W. Horton.

Coastal Glaciers of Prince William Sound and Kenai Peninsula, Alaska. U. S. Grant and D. F. Higgins.

Comparative Tests of Run-of-Mine and Briquetted Coal on Locomotives. W. F. M. Goss.

Copper Deposits of Arizona. F. L. Ransome and J. M. Hill.

Current Decisions on Mines and Mining, October, 1912, to March, 1913. J. W. Thompson.

Electrolytic Method of Preventing Corrosion of Iron and Steel. J. K. Clement and L. V. Walker.

Economic Geology of Region around Mullan, Idaho, and Saltese, Montana: by F. C. Calkins and E. L. Jones, Jr.; and Lead-Silver Deposits of Dome District, Idaho: by Joseph B Umpleby.

Geologic Reconnaissance of Fairbanks Quadrangle, Alaska. L. M. Prindle.

Geologic Reconnaissance of Part of Rampart Quadrangle, Alaska. Henry M. Eakin.

Geology and Ore Deposits of Lemhi County, Idaho. Joseph B. Umpleby.

Geology and Ore Deposits of the San Francisco and Adjacent Districts, Utah. B. S. Butler.

Geology of Nome and Grand Central Quadrangles, Alaska. Fred H. Moffit.

Ignition of Mine Gases by Filaments of Incandescent Lamps. H. H. Clark and L. C. Ilsley.

Influence of Inert Gases on Inflammable Gaseous Mixtures. J. K. Clement.

Investigations of Detonators and Electric Detonators. Clarence Hall and Spencer P. Howell.

Koyukuk-Chandalar Region, Alaska. A. G. Maddren.

Little Sheep Mountain Coal Field, Dawson, Custer, and Rosebud Counties, Montana. G. S. Rogers.

Metal-Mine Accidents in U. S. during 1911. Albert H. Fay.

Mineral Resources of Inyo and White Mountains, California. Adolph Knopf.

Mining and Treatment of Feldspar and Kaolin in Southern Appalachian Region. A. S. Watts.

Mortality Statistics for 1910 and 1911.

National Mine-Rescue and First-Aid Conference, Pittsburgh, Penn., 1912. Herbert M. Wilson.

Niter near Melrose, Montana. R. W. Richards.

Oil and Gas near Green River, Utah, and Petroleum near Dayton, New Mexico. Charles T. Lupton and G. B. Richardson.

Permissible Explosives Tested Prior to March 1, 1913.

Portable Electric Mine Lamps. H. H. Clark.

Potash and Other Salines. Hoyt S. Gale.

Potash in Western Saline Deposits. James H. Hance.

Preliminary Report on Red Iron Ores of East Tennessee, Northeast Alabama, and Northwest Georgia. Ernest F. Burchard.

Prevention of Mine Explosions. Victor Watteyne, Carl Meissner, and Arthur Desborough.

Production and Use of Brown Coal in Vicinity of Cologne, Germany. Charles A. Davis.

Proposed Regulations for Drilling of Gas and Oil Wells. O. P. Hood and A. G. Heggem.

Quarry Accidents in U. S. during 1911. Albert H. Fay.

Reconnaissance of Barstow-Kramer Region, California. R. W. Pack.

Rules for Mine-Rescue and First-Aid Field Contests. James W. Paul.

Sanitation at Mining Villages in Birmingham District, Ala. Dwight E. Woodbridge.

Structural Materials in Colorado and California and Clay in Montana. J. F. Hunter, R. W. Pack and C. M. Bauer.

Titaniferous Iron Ores in U. S. Joseph T. Singewald, Jr.

Utilization of Fuel in Locomotive Practice. W. F. M. Goss.

Use and Care of Miners' Safety Lamps. James W. Paul.

Vitrified Brick as Paving Material for Country Roads. Vernon M. Peirce and Charles H. Moorefield.

Water-Supply Papers 307, 308, and 318.

Weaverville Quadrangle, California. J. S. Diller and H. G. Ferguson.

Williston Lignite Field, Williams County, North Dakota. Frank A. Herald.

Yellow Pine Mining District, Clark County, Nevada. James M. Hill.

State Reports

Massachusetts. Annual Report of State Highway Commission for 1912.

Utah. First Biennial Report of Conservation Commission, 1913.

City and Town Reports

Melrose, Mass. Annual Report of Public Works Department for 1912.

Newton, Mass. Annual Report of City Engineer for 1912.

St. Louis, Mo. Annual Report of Water Commissioner for 1912.

Worcester, Mass. Annual Report of Supt. of Sewers for 1912.

Miscellaneous

Babcock & Wilcox Co. Steam: Its Generation and Use. 2 vols., 34th and 35th editions.

Brooklyn Engineers' Club. Proceedings for 1912.

Canada, Department of Mines. Economic Minerals and Mining Industries of Canada. The Nickel Industry, with Special Reference to the Sudbury Region, Ontario, A. P. Coleman. Sections of Sydney Coal Fields, Cape Breton. Joseph G. S. Hudson.

Water Supply from Shoal Lake for Greater Winnipeg Water District. Rudolph Hering, Frederic P. Stearns, and James H. Fuertes. Gift of Frederic P. Stearns.

LIBRARY COMMITTEE.

NEW ENGINEERING WORK

(Under this head a brief description of new engineering work contemplated or under construction will be presented each month. Engineers and contractors are requested to send descriptions of their work to the Secretary, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—Metropolitan Park Commission.—Work of construction of Anderson Bridge is in progress. General road repairs.

Metropolitan Water and Sewerage Board.—Sewerage Works.—Work on Sections 68 and 70, new Mystic Sewer, at Winchester, is in progress. Section 69 is soon to be let.

Massachusetts Highway Commission.—A three-span reinforced concrete arch bridge is under construction at Onset in town of Wareham, over East River, so called.

Arches are now being built for a three-span reinforced concrete bridge over Deerfield River in town of Charlemont.

Grading is being done on Traffic Road in Revere, between Point of Pines and Revere St., material used for grading being secured by dredging in Saugus and Pines Rivers.

A concrete road surface is under construction in North Andover on road leading from Lawrence to Middleton.

Bituminous roads are under construction on River Road in Dracut, and on many other roads in the Commonwealth.

Directors of the Port of Boston.—Commonwealth Pier No. 5.—The work of reconstructing and equipping the Commonwealth Pier still continues. Steel work for the headhouse to date is two-thirds erected, the erection of the steel work for the west shed just commencing. The sub-contractors for the electric lighting and power wiring and for heating and ventilating have begun actual operations.

Fish Pier (Pier No. 6).—The work of paving Northern Avenue and the pier itself is still under way.

Heating Plant.—The contract for the construction has been awarded and the work of driving the piles for the foundation has commenced.

Viaduct from Commonwealth Pier No. 5 to Summer St. The contract has been awarded for the foundations and the work of construction commenced. The contract for the steel work has also been awarded.

Eastern Pier, East Boston.—The pier known as the Eastern Railroad Pier has been taken by eminent domain and schemes for the development of the same are under way.

Dredging.—The Directors will receive on Oct. 15 proposals for the following dredging:

(1) Dredging and filling on the Commonwealth Flats. Estimated quantity 950,000 cu. yds. This work is for dredging a channel and filling in the vicinity of the proposed dry dock.

(2) Dredging Reserved Channel between L St. Bridge and angle opposite the Walworth Mfg. Co.'s property. Estimated quantity 400,000 cu. yds.

(3) Dredging opposite Commonwealth Pier No. 5. Estimated quantity 164,000 cu. yds.

(4) Dredging channel to Metropolitan Coal Co. wharf, South Boston. Estimated quantity 52,000 cu. yds.

Boston Transit Commission.—Section 1 of the Boylston-street Subway, extending from Kenmore Street to Massachusetts Avenue, including the ornamental concrete balustrade around the incline at Kenmore Street, is substantially completed.

Work is progressing on the Massachusetts-avenue Station, part of Section 2, between Massachusetts Avenue and Public Alley No. 444. The stables in the rear of Newbury Street are being supported and the subway construction carried on beneath. The remainder of the station is being constructed in the open. The remodelling of the Police Department stable and construction of a garage over the subway roof facing on Boylston Street is under construction by the A. Varnerin Co. The rest of Section 2, extending to Hereford street, is completed.

Section 3, from the east line of Hereford street to the Public Library, is completed. The street surface has been paved with bitulithic and the contractor for this section is engaged in restoring the sidewalks.

Section 4, between the Public Library and Arlington street, is completed excepting a section about 200 feet long at Arlington street and a portion near Dartmouth street. At Dartmouth street the uncompleted work consists of about 150 feet of subway and the lobby under Dartmouth street. It also includes about 150 feet of station construction in front of the tower of the Old South Church. Work is in progress at all of these places.

A contract has been let for Section 5, extending from Arlington street to and including the temporary connection with the Tremont-street Subway near Carver street. This section will include the re-location of the Public Garden incline from its present location to the middle of Boylston street, which is to be widened between Charles and Church streets for this purpose.

The contractor for Sections 1, 2, 3, 4 and 5 of the Boylston-street Subway is the Hugh Nawn Contracting Co.

Section B of the Dorchester Tunnel includes the proposed station in Summer street, which will extend from near Washington street east to Arch street. The work of underpinning the buildings on Summer street along the line of the work is nearly completed. Concrete sidewalks and steel columns and roof beams are being put in and the new cast iron sewers are being laid. The contractor is the Hugh Nawn Contracting Co.

On the Extension of the East Boston Tunnel the construction of a part of the station under and near the present station in Scollay square between Brattle and Howard streets is in progress. The tunnel has been completed from the southerly line of Howard street to Stoddard street. Isaac Blair & Co., Inc., is the contractor. The contract for Section J, extending from Staniford street to North Russell street and including about 400 feet of two-track subway and 180 feet of open incline, has been awarded to Coleman Brothers, who began operations on September 30, 1913.

City of Boston.—Public Works Department, Highway Division, Paving Service.—Work is in progress on the following streets:—Sleeper Street, from Congress Street to about 650′ northerly, granite block; Mitchell Street, from Old Colony

Avenue about 240′ northerly, tar-macadam; Orient Avenue, from Walley Street to Tower Street, asphalt-macadam; Emmons Street, from Paris Street to Chelsea Street, tar-macadam; Washington Street, from Cambridge Street to Market Street, bitulithic; Appian Way, from Franklin Street to Raymond Street, tar-macadam; Tyndale Street, from Walworth Street to Guernsey Street, tar-macadam; Centre and South Streets, from Green Street to Keyes Street, bitulithic; Cliftondale Street, from Norfolk Street to Kittredge Street, asphalt-macadam; Montclair Avenue, from Centre Street to Fletcher Street, macadam; Park Street, from March Avenue to Centre Street, artificial stone sidewalk; Conway Street, from South Street to Fairview Street, artificial stone sidewalk; Sheffield Road, from Walter Street to Selwyn Street, tar-macadam; Walworth Street, from Belgrade Avenue to Brooks Street, tar-macadam; Germania Street, from Bismark Street to Boylston Street, artificial stone sidewalk; Woolson Street, from Norfolk Street to Blue Hill Avenue, tar-macadam; Mascoma Street, from Quincy Street to Lawrence Avenue, tar-macadam; Westville Street, from Geneva Avenue to Draper Street, artificial stone sidewalk; Hallet Street, from Minot Street to N. Y. N. H. & H. R. R. Bridge, macadam; Popes Hill Street, from Neponset Avenue to Freeport Street, artificial stone sidewalk; Evelyn Street, from Blue Hill Avenue to Norfolk Street, tar-macadam; Blue Hill Avenue, from Washington Street about 192′ southerly, artificial stone sidewalk; Vesta Road, from Harvard Street to Blue Hill Avenue, asphalt-macadam; Withington Street, from Norfolk Street to Torrey Street, artificial stone sidewalk; Calumet Street, from Parker Hill Avenue to Hillside Street, tar-macadam; Ruggles Street, from Washington Street to Shawmut Avenue, wood block; Vernon Street, from Shawmut Avenue to Washington Street, wood block; Marvin Street, from Shawmut Avenue to Washington Street, wood block; Warren Avenue, from Berkeley Street to Columbus Square, wood block.

Public Works Department, Bridge and Ferry Division. —Pleasant St. Bridge.—To provide for the widening of Pleasant street about 25 feet, the bridge over the entrance to the subway at the junction of Tremont street and Shawmut avenue is being

rebuilt at the width of 60 feet. The widened portion will have a reinforced concrete and steel I-beam floor supported by steel columns. The wearing surface of the old bridge will be removed and a new surface of wood block paving laid over the entire width of the roadway, and new sidewalks of artificial stone will be built.

Brookline St. Bridge.—All flooring of this bridge over the Charles River at Cottage Farm is being rebuilt of yellow pine planking and a wood block pavement for the roadway is being laid.

Chelsea Bridge, South.—A temporary bridge over the south channel of Mystic River is being built to provide for travel during the reconstruction of the old bridge, which is in bad condition and must be rebuilt in the near future. This temporary bridge is similar to the temporary bridge which was in use during the construction of the Chelsea Bridge, North, and the steel swing draw-span used at the North Bridge will serve the same purpose at the South Bridge.

New York, New Haven & Hartford Railroad.—Clinton, Mass. Elimination of Grade Crossings. Work on the Boston & Maine Railroad now in progress is the building of a subway for pedestrians at Sterling Street and the cutting down of the former grade of the Railroad and the sloping of the banks adjacent.

Work on the New Haven is the building of a temporary trestle over the Boston and Maine tracks, the erection of steel bridges by the Lucius Engineering Co. at High Street, and the building of retaining walls for sidetracks for the Clinton Wire Cloth and Swift and Company—affected by the changes in grade of the railroad tracks.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

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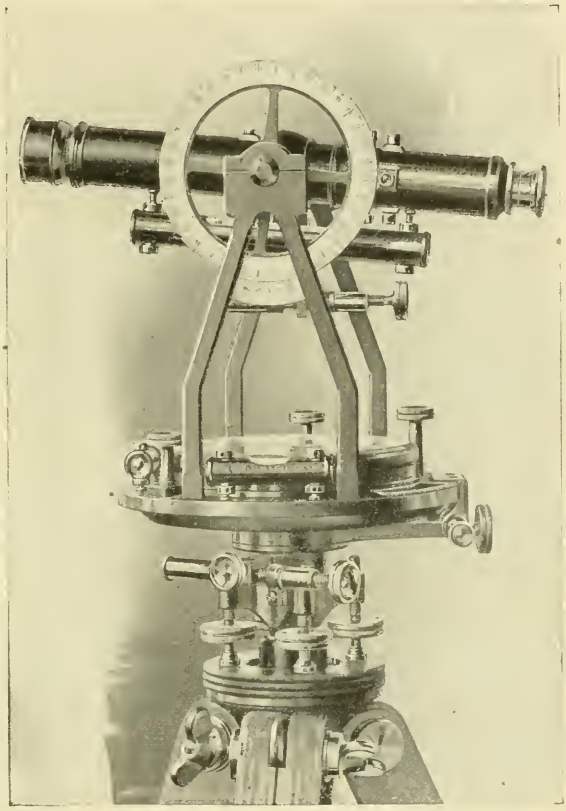

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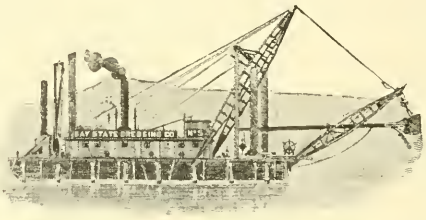

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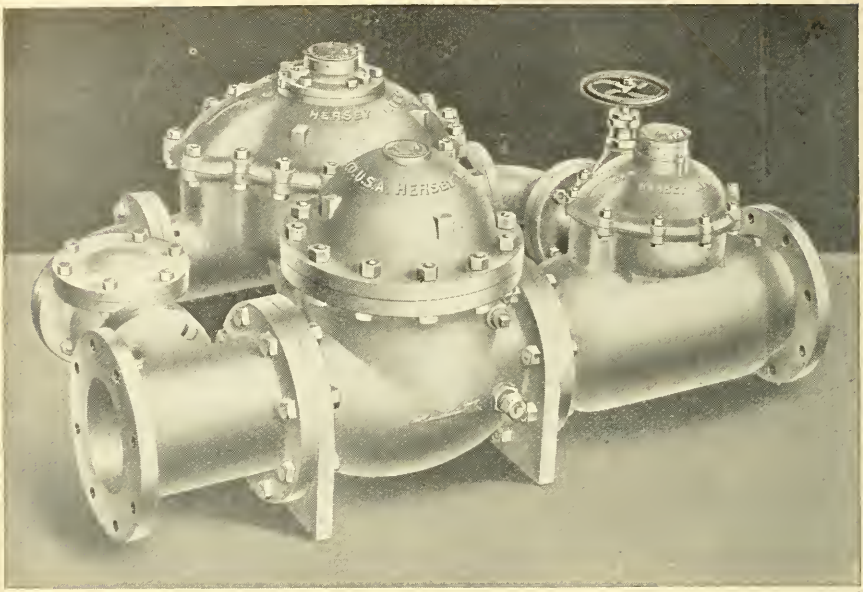

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MONTHLY BULLETIN.

NEW SERIES. NOVEMBER, 1913 No. 76

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, November 19, 1913, at 7.45 o'clock P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting:—To act on the following resolution in relation to the flood control of the Mississippi River, recommended by the Committee appointed at the last meeting. (See below.)

At quarter past eight a joint meeting will be held with the American Society of Mechanical Engineers and the Boston Section of the American Institute of Electrical Engineers.

Mr. John W. Alvord of Chicago, will read a paper entitled "Engineering Lessons from the Ohio Floods." The paper will be illustrated by lantern slides.

S. E. TINKHAM, *Secretary.*

RESOLUTION IN RELATION TO THE FLOOD CONTROL OF THE MISSISSIPPI RIVER

The Committee appointed at the last meeting to consider the communication from the Mississippi River Levee Association, recommend the adoption of the following resolution:—

WHEREAS, the flood control of the Mississippi River is a problem demanding serious and immediate attention; and

WHEREAS, all such problems can best be handled by some central authority which, in addition to its own work, can direct and co-operate with the efforts of local interests, and

WHEREAS, owing to the great extent of territory affected, the United States Government is the only central authority available to handle this problem, and

WHEREAS, the improvement of the various rivers and harbors throughout the country can best be carried out by the cordial coöperation of the inhabitants of all sections, and

WHEREAS, we in Boston, vigorously promoting the development of this port and the commercial and industrial advancement of New England, realize that the proper control of the Mississippi River is a matter which not only affects the welfare of the whole country, but will materially benefit the manufacturing and commercial interests of Boston and New England, therefore be it

RESOLVED, that the Boston Society of Civil Engineers, believing the levee system to be the most practicable method of regulating the Mississippi River floods, favors the passage of the measure now before Congress known as the Humphreys-Ransdell bill, entitled "A Bill To Prevent Floods on the Mississippi River and Improve Navigation Thereon."

APPLICATIONS FOR MEMBERSHIP

[November 12, 1913]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

Ambler, Halford H., Winchester, Mass. (Age 22, b. Newark, N. J.) Student in fourth year at Mass. Inst. of Technology. Has done no professional work outside worth mentioning, but expects to follow engineering career. Refers to C. B. Breed, L. E. Moore, G. E. Russell, and C. M. Spofford.

Bowers, George Winthrop, Lowell, Mass. (Age 27, b. Lowell, Mass.) Graduate of Mass. Inst. of Technology, Civil Engineering course, in 1910. During summer of 1908 was with Merrimack Mfg. Co. of Lowell as draughtsman; during summer of 1909, cement tester for City of Lowell; from June, 1910, to January, 1911, recorder in charge of field party for survey of City of Concord, N. H., for assessors' map; March to July, 1911, assistant to Town Engr. at Narragansett Pier, R. I.; September and October, 1911, with Stone and Webster Engrg. Corp'n. as boring inspector of four drilling camps on New Hampshire water-power project; November, 1911, in charge of driving wells for Nashua (N. H.) Mfg. Co.; February 1 to June 1, 1912, transitman for City of Jacksonville, Fla.; June, 1912 to July, 1913, Asst. Engr. of Jacksonville Sewer Dept. in charge of construction of new sewage system; July, 1913, to date, Asst. Engr. Chelmsford Water District, in charge of construction of complete system of water works for Chelmsford, Mass., consisting of driven wells, pumping station, reinforced concrete reservoir, and about eight miles of distributing pipe. Refers to F. H. Fay, L. E. Moore, F. P. Spalding, and C. M. Spofford.

Capelle, George C., Watertown, Mass. (Age 31, b. Cambridge, Mass.) Educated at Cambridge Manual Training School, Class of '98, and at Mass. Inst. of Technology, Class of 1903. (3 years.) During summers of 1899 to 1902, with Metropolitan Sewerage Commission as rodman and instrumentman on high level sewers; from December, 1902 to January, 1903, draftsman and inspector at U. S. Navy Yard, Portsmouth, N. H.; during March and April, 1903, draftsman with American Bridge Co., E. Berlin, Ct.; from May, 1903 to December, 1904, draftsman and inspector at U. S. Navy Yards, League Island, Penn., and Boston, Mass., chiefly on dry docks, sea walls, shop buildings and steel computations in office; during spring of 1905, Assistant Engineer of City of Cambridge, in charge of line and grade on pipe lines; June, 1905, to July, 1906, civil engr. with U. S. Army, Q. M. Dept., in

charge of construction of Fort Revere, Mass., and Forts St. Philip and Jackson, and Jackson Barracks, La.; from July to September, 1906, with Hudson Company, New York, in charge of party lines and grades, Hudson Tunnels; from September, 1906, to April, 1912, Asst. Engr. with Boston Elevated Railway Co., in charge of line and grade on Forest Hills Extension and line and grade and engineering details on Charles River Bridge. From June, 1912, to date, with Directors of Port of Boston. Refers to C. S. Bryer, J. N. Ferguson, C. T. Fernald, J. L. Howard, E. R. Olin, and J. W. Rollins.

Fox, Samuel M., Jr., Boston. (Age 20, b. Philadelphia, Penn.) Studied two years at Princeton University in Civil Engineering course, leaving with certificate in June, 1913. Is now a student in the Civil Engineering course at Mass. Inst. of Technology, class of 1915. Is a member of M. I. T. Civil Engrg. Society. Refers to C. F. Allen, C. B. Breed, A. E. Burton, A. G. Robbins, and C. M. Spofford

Gartland, Edward Vincent, Dorchester, Mass. (Age 30, b. Boston.) Educated in grammar and high schools of Boston. From 1901 to 1906 with E. W. Bowditch, Boston, as rodman, transitman, inspector and partyman; from 1908 to 1912, engineering inspector with Harbor and Land Commission of Massachusetts; from 1912 to date, with Directors of Port of Boston as engineering inspector and assistant engineer. Refers to C. S. Bryer, J. F. Connell, J. N. Ferguson, J. A. Guiney, F. W. Hodgdon, and J. L. Howard

Sokoll, Jacob Max, Boston, (Age 24, b. Kerson, Russia.) Graduate of Tufts College, Civil Engineering course, in 1913. Was employed temporarily after graduation with Water Division, High Pressure Fire Service of Boston; is at present structural detailer and draftsman with New England Structural Co. Refers to S. L. Conner, E. H. Rockwell, F. B. Sanborn, and R. H. Smith.

MINUTES OF MEETINGS

OCTOBER MEETING OF THE SOCIETY

Boston, October 15, 1913.—A regular meeting of the Boston Society of Civil Engineers was held this evening at Chipman Hall, Tremont Temple, at 8 o'clock. President Frederic H. Fay in the chair, 75 members and visitors present.

By vote the reading of the record of the last meeting was dispensed with, and it was approved as printed in the October *Bulletin*.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:

Members:—Chester Arthur Moore, Carl Stuetzel, Jr., William Leuty Vennard and Francis S. Wells.

Junior:—Harry P. Burden.

The Secretary read a communication from the Mississippi River Levee Ass'n, asking this Society to take some action approving the plans of the Mississippi River Commission and recommending favorable action by Congress for carrying out these plans.

On motion of Mr. Weston it was voted to appoint a committee consisting of the President and two members to be named by him, to consider the matter of the communication and, if they deem it advisable for the Society to take action in the matter, to report their recommendation in print in the next issue of the *Bulletin*. The President has named as his associates on the Committee, Messrs. Frank W. Hodgdon and Frank A. Barbour.

A communication was also received from the Secretary of the National Conservation Congress, inviting this Society to appoint three delegates, with alternates, to represent the Society at the 5th National Conservation Congress, to be held in Washington, D. C., November 18th, 19th, and 20th. By vote the President was authorized to appoint the delegates, if he can find members available for the purpose.

Mr. John L. Howard then read the paper of the evening, giving an account of the work of the Directors of the Port of Boston. The paper was illustrated with lantern slides.

Past President Frank W. Hodgdon gave some additional facts of interest relating to the work of the Directors.

(Adjourned.)

S. E. Tinkham, *Secretary*.

OCTOBER MEETING OF SANITARY SECTION

Boston, Mass., October 1, 1913.—The regular October meeting of the Sanitary Section, held today, was conducted in the form of an excursion to the Calf Pasture Pumping Station

of the Boston main drainage system in Dorchester. The meeting was opened at two o'clock P. M. by the chairman. There was no business transacted.

Mr. Edgar S. Dorr, chief engineer of the Sewer Service, Department of Public Works, assisted by Mr. Sanborn, guided the party through the screen house, boiler room, incinerator room and pump room, where all parts of the plant were fully described and discussed. The twin units of steam turbine driven centrifugal pumps now being installed were the center of much interest, especially on account of their very low initial cost compared with the high duty Leavitt pumps. The discharge channel between the pumps and the tunnel under Dorchester Bay was also examined.

Mr. Dorr gave a very interesting description of his experiments on the chemical precipitation of sewage discharged by the pumps. The experiments were made in two small tanks of a capacity of approximately 1300 gal. each. The sewage before entering the tanks is treated with sulphur dioxide gas, forming a precipitate which settles out in the tanks. From the precipitate thus formed, Mr. Dorr hopes to be able to obtain a sufficient amount of grease and material of value as a fertilizer to cover the cost of operation of the chemical precipitation plant, and at the same time accomplish a partial purification of the raw sewage. The method of applying the chemicals was illustrated by the chemist, Mr. Miles.

There were 25 members and friends present.

FRANK A. MARSTON, *Clerk.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing employees to members and others desiring men capable of filling responsible positions.

POSITION AVAILABLE

018. Draftsman wanted for general railroad work in office. Salary $85 per month. Apply to Engineer of Construction, Maine Central Railroad Co., Portland, Maine.

MEN AVAILABLE

197. Age 18. Graduate of Mechanics Arts High School in 1913. Has had one year's school experience in surveying. Desires position in civil engineer's or surveyor's office or as rodman.

198. Age 23. Graduate of Mass. Inst. of Technology, 1913, in Civil Engineering Course. Has had three months' experience in structural detailing with American Bridge Co. Prefers out-of-door work, but will accept any kind of civil engineering work. Salary desired, $15 per week.

199. Age 23. Graduate of High School, 1902, and has studied one year at University of Maine. Has had two years' experience with Engineering Dept. of City of Newton as rodman and transitman. Desires position as transitman or sewer inspector. Salary desired, $15 per week.

200. Age 34. Graduate of Trinity College, Hartford, in 1901, with degree of B. S. Has since been engaged in engineering work along various lines including a wide experience in railroad work. Salary desired, $100 per month.

201. Age 19. Educated at Rindge Technical School, Cambridge, Mass. Is now taking I. C. S. course in civil engineering. Has had no experience. Desires position as rodman or chainman. Salary desired, $30 per month.

202. Age 26. Educated in grammar and high school. Has had nine and one-half years' experience as architectural and structural draftsman. Desires position as structural draftsman. Salary desired, $22 per week.

LIST OF MEMBERS

ADDITIONS

BURDEN, HARRY P. .....22 Fairmount St., Tufts College, Mass.

STUETZEL, CARL, JR. .....20 Montview St., West Roxbury, Mass.
VENNARD, WILLIAM L. .....City Engineer, City Hall, Lynn, Mass.

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THORNDIKE, STURGIS H. .....The Charlesgate, Boston, Mass.
WHITMAN, RALPH .....U. S. Naval Academy, Annapolis, Md.
WOOD, LEONARD P., c/o Board of Water Supply, Municipal Bldg., New York, N. Y.

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Analyses of Coals in U. S., 2 parts. N. W. Lord and others.

First-aid Instructions for Miners. M. W. Glasgow and others.

Inflammability of Coal Dust. J. C. W. Frazer and others.

Mining and Treatment of Lead and Zinc Ores in Joplin District, Mo. Clarence A. Wright.

Observations at Coast and Geodetic Survey Magnetic Observatory, near Honolulu, Hawaii, 1911 and 1912. Daniel L. Hazard.

Origin of Colemanite Deposits. Hoyt S. Gale.

Recall of Judicial Decisions. Ezra R. Thayer.

State Reports

Massachusetts. Annual Reports of Board of Gas and Electric Light Commissioners for 1887, 1894-96, 1900-12, 17 vols.

New York. Annual Report of Public Service Commission for First District for 1911, Vol. III.

Wisconsin. Report of Geological and Natural History Survey on Geography and Industries of Wisconsin. Ray Hughes Whitbeck.

County Reports

Westchester Co., New York. Report of Commissioners of Bronx Valley Sewer, December, 1912.

City and Town Reports

Cambridge, Mass. Annual Report of Water Board for 1912.

Chicago, Ill. Sewerage System of Chicago, by C. D. Hill, and Sewage Disposal in U. S. and Abroad, by Langdon Pearse, 1911.

Evanston, Ill. Filtration, 1912.

New Orleans, La. Semi-annual Report of Sewerage and Water Board, December, 1912.

Philadelphia, Penn. Business Methods in Municipal Works. Morris L. Cooke.

Pittsburgh, Penn. Annual Report of Bureau of Construction for 1912.

Plainfield, N. J. Annual Report for 1912.

Reading, Penn. Annual Report of Water Commissioners for 1912.

Miscellaneous

Climate and Weather of San Diego, Cal. Ford A. Carpenter.

Dodd & Struthers. Lightning. Prof. West Dodd.

Fairbanks Scales Co. Catalogues as follows: Trucks; Yale and Towne Hoists; Power Transmission Appliances; Valves.

Institution of Mechanical Engineers. Proceedings, Parts 3-4, 1909, to Parts 1-2, 1912, inclusive, 6 vols. General Index, 1901-10.

Lake Michigan Water Commission. First and Second Reports, 1909 and 1911.

Ludlow Valve Manufacturing Co. Catalogue for 1913.

National Board of Fire Underwriters. List of Manufacturers of Fire Appliances, July, 1913. Relation of Fire Insurance to Incendiarism. Frank Lock.

(The) New Competition. Arthur Jerome Eddy.

John C. Paige & Co. Federal Income Tax Law. Jay R. Benton.

Railway Library for 1912. Slason Thompson, Ed.

Wheeling Corrugating Co. Catalogues as follows: Sheet Metals and Sheet Metal Products; Metal Shingles; Butt-joint Nestable Metal Culvert; Black and Galvanized Stamped Ware; Metal Ceilings.

LIBRARY COMMITTEE.

NEW ENGINEERING WORK

(Under this head a brief description of new engineering work contemplated or under construction will be presented each month. Engineers and contractors are requested to send descriptions of their work to the Secretary, 715 Tremont Temple, Boston, before the first of each month.)

Commonwealth of Massachusetts.—METROPOLITAN PARK COMMISSION.—*Charles River Reservation.* Work of construction of Anderson Bridge is in progress.

Woburn Parkway. Bids were received October 28th for construction of Woburn Parkway.

METROPOLITAN WATER AND SEWERAGE BOARD.—SEWERAGE WORKS.—Work on Sections 68 and 70, new Mystic Sewer, at Winchester, is in progress. Section 69 is soon to be let.

Massachusetts Highway Commission.—A three-span reinforced concrete arch bridge is under construction at Onset in town of Wareham, over East River, so called.

Arches are now being built for a three-span reinforced concrete bridge over Deerfield River in town of Charlemont.

Other work as reported last month is still in progress.

Massachusetts State Board of Health.—NEPONSET RIVER IMPROVEMENT.—Work of dredging was commenced January 28, 1913. Total quantity to be dredged is about 275,000 cubic yards and practically one-half of the work of dredging has been com-

pleted. The new channel from the railroad bridge south of Glenwood Avenue, in Hyde Park up to the new highway bridge across the river at Green Lodge Street in Canton is very nearly completed for the entire length.

About 2,700 feet of the new channel has been completed through the Hyde Park district from the foot of West Street nearly up to Dana Ave.

One 10-inch cast iron water pipe line has been taken out and relaid at a lower elevation in Hyde Park near the old pumping station of the former Hyde Park Water Company.

The material deposited on the Milton side of the River below Pauls Bridge has been graded and levelled.

The work of grading and levelling the material deposited throughout the Hyde Park district is now in progress.

Two dredges are in operation sixteen (16) hours every day, working on two 8-hour shifts each.

There are sixteen (16) cut-offs in the stretch between Pauls Bridge and Green Lodge Street where the old bends and curves in the former river have been straightened out.

The work of filling in the abandoned sections of the river, caused by these cut-offs, has progressed well and is only held up by high water on the meadows. They are all to be filled in so that there will eventually be no stagnant areas for the breeding of mosquitoes.

A powerful "Jet Boat" is at work on the spoil banks above Pauls Bridge where the material deposited by the dredge is being graded and levelled by "washing" it back onto the meadows. This boat is equipped with a two cylinder gasoline engine and two stage centrifugal pump, throwing over 400 gallons of water per minute through a 1½ inch brass play pipe and nozzle under a pressure of about 80 lbs. per sq. in. This gives a very powerful "fire stream" for sluicing the banks much the same as is used in placer mining in the far West.

The total length of the old river to be dredged is about 65,033 feet, or about 12.31 miles, running from the dam of the Mattapan Paper Mills at River Street up to the outlet of the Norwood Filter Beds above Traphole Brook in the town of Sharon.

The new channel, by means of the many cut-offs, will shorten the river to about 54,492 feet or about 10.32 miles, taking off about two (2) miles from the present channel and thereby giving a better hydraulic grade for carrying off the flow at all times of the year.

At the present time, about 20,277 feet or 3.83 miles of the channel has been dredged much of this being where the material to be dredged is a maximum per lineal foot.

It is fully expected that the entire work will be completed by the last of September, 1914, which will be about two months ahead of contract time.

Careful revisions in the alignment have been made throughout the sections so far dredged in order to secure so far as possible a minimum cross section for excavation so that the work of improvement may be carried as far up stream as possible and it is now practically assured that the work can be carried at least up to the outlet of the Norwood Filter Beds above Traphole Brook.

The benefits of the new channel have already been noticed. Pressure is being brought to bear with the object of completing the channel through the Hyde Park district by the first of March, 1914, so that the flood waters of the spring of 1914 can be handled by the new channel from the Mattapan Paper Mills as far up as Dedham Road without flooding the meadows above Pauls Bridge and the Hyde Park district.

The New York, New Haven & Hartford Railroad has so far coöperated with the Board of Health in remedying the old conditions at several of its bridges through Hyde Park where the flow of the river had been seriously obstructed. It is today replacing the center pier at the bridge below Fairmount Avenue in Hyde Park with a new one 4 feet lower down so that the bottom grade of the new channel can be secured through that bridge.

Directors of the Port of Boston.—Commonwealth Pier No. 5.—The work of reconstructing and equipping the Commonwealth Pier still continues. Steel work for the headhouse to date is two-thirds erected and the steel work for the west shed

about one-half erected. The work of equipping the pier with electric light and power wiring, heating and ventilating systems still continues. The work of placing the artificial stone work for the headhouse has commenced.

Fish Pier (Pier No. 6).—The work of paving Northern Avenue and the pier itself is still under way.

The Aberthaw Construction Company is just beginning work on the fish freezing plant on the new fish wharf at South Boston. The work immediately in hand is the building of the power station. Throughout this job steel forms will be used for walls and a good opportunity to study the use of this style of forms will be afforded. It will be particularly interesting as the job will be handled through cold weather where the forms should appear at as great disadvantage as possible.

Heating Plant.—The work of constructing the foundation for the heating plant still continues. Sub-contracts have been awarded for the boilers and chimney.

Viaduct.—The work of constructing the foundations for the viaduct from Commonwealth Pier No. 5 to Summer Street is well under way.

Dredging.—Contracts for dredging and filling on the Commonwealth Flats and for dredging channel to the Metropolitan Coal Co. wharf have been awarded. The work has not yet commenced.

Boston Transit Commission.—The Boylston-street Subway extends from Kenmore street, near the intersection of Commonwealth avenue and Beacon street, to the southwest corner of the Common near Park square, a distance of about 8000 feet. About 6500 linear feet of this subway are substantially completed, including Sections 1 and 3. About 1500 feet more are under contract and being constructed.

Work is progressing on the Massachusetts-avenue station, part of Section 2, between Massachusetts avenue and Public Alley No. 444. The rest of this section, extending to Hereford street, is completed.

Section 4, between the Public Library and Arlington street, is completed excepting about 100 feet near Arlington street and a portion of the station near Dartmouth street. Work is in progress at both of these places.

Section 5, from Arlington street to and including the temporary connection with the Tremont-street Subway near Carver street, is under construction. The pump-well near Church street is partly completed and work is progressing on the sidewalls between that point and Arlington street.

The contractor for Sections 1, 2, 3, 4 and 5 of the Boylston-street Subway is the Hugh Nawn Contracting Co.

Section B of the Dorchester Tunnel includes the proposed station in Summer street, which will extend from near Washington street east to Arch street. The work of underpinning the buildings on Summer street along the line of the work is nearly completed. Concrete sidewalls and steel columns and roof beams are being put in and the new cast iron sewers are being laid. The contractor is the Hugh Nawn Contracting Co.

On Section G of the East Boston Tunnel Extension, the construction of a part of the station under and near the present station in Scollay square between Brattle and Hanover streets is in progress. Isaac Blair & Co., Inc., is the contractor.

On section J the walls of the westerly incline in Cambridge street between Chambers and North Russell streets have been built and excavation is proceeding between Lynde and Chambers streets. Coleman Bros. are the contractors. The building 161-171 Cambridge street is being torn down for the widening of the street at the end of the incline. The Swift Contracting Co. is doing the work.

City of Boston.—PUBLIC WORKS DEPARTMENT, HIGHWAY DIVISION, *Paving Service.*—Work is in progress on the following streets:—Mitchell Street, from Old Colony Avenue about 240′ northerly, tar-macadam; Orient Avenue, from Walley Street to Tower Street, asphalt-macadam; Emmons Street, from Paris Street to Chelsea Street, tar-macadam; Washington Street, from Cambridge Street to Market Street, bitulithic; Appian Way, from Franklin Street to Raymond Street, tar-

macadam; Tyndale Street, from Walworth Street to Guernsey Street, tar-macadam; Centre and South Streets, from Green Street to Keyes Street, bitulithic; Cliftondale Street, from Norfolk Street to Kittredge Street, tar-macadam; Park Street, from March Avenue to Centre Street, artificial stone sidewalk; Conway Street, from South Street to Fairview Street, artificial stone sidewalk; Sheffield Road, from Walter Street to Selwyn Street, tar-macadam; Walworth Street, from Belgrade Avenue to Brooks Street, tar-macadam; Germania Street, from Bismark Street to Boylston Street, artificial stone sidewalk; Spring Street from Webster Avenue to the Charles River, asphalt macadam; Woolson Street, from Norfolk Street to Blue Hill Avenue, tar-macadam; Popes Hill Street, from Neponset Avenue to Freeport Street, artificial stone sidewalk; Vesta Road, from Harvard Street to Blue Hill Avenue, asphalt-macadam; Withington Street, from Norfolk Street to Torrey Street, artificial stone sidewalk; Crossman Street, from Norfolk Street to W. Seldon Street, tar-macadam; Roach Street, from Dorchester Avenue, to Pleasant Street, tar-macadam; Norfolk Street, from Washington Street, to the R. R. bridge, bitulithic; Calumet Street, from Parker Hill Avenue to Hillside Street, tar-macadam; Warren Avenue, from Berkeley Street to Columbus Square, wood block; Pleasant Street, from Eliot Street to Washington Street, wood block; Fulton Street, from Richmond Street to Lewis Street, paving and regulating.

Sewer and Water Division.—Sewer Service.—Between West Newton and Rutland Streets, South End. Sewer in Alleyway. Width of alley 10″-0″. Size of sewer 3′-9″x3′-9″ concrete.

Bridge and Ferry Division.—*Pleasant St. Bridge.*—The work of widening this bridge is nearly completed; the artificial stone sidewalks have been laid and the roadway is ready for the wood block pavement.

Chelsea Bridge, South.—A temporary bridge over the south channel of Mystic River is being built to provide for travel during the reconstruction of the old bridge, which is in bad condition and must be rebuilt in the near future. The pile ap-

proaches are well under way and rails for street car traffic are being laid at the southerly end. The piles for the draw centre pier have been driven and also those for the northerly approach.

New York, New Haven & Hartford Railroad.—Clinton, Mass. Elimination of Grade Crossings. Work on the Boston and Maine Railroad now in progress is the building of a subway for pedestrians at Sterling Street and the cutting down of the former grade of the Railroad between Sterling Street and the New Haven Railroad crossing.

Work on the New Haven consists of the erection of steel bridges at High and Water Streets and the making of the embankment throughout the entire grade crossing work.

Quincy, Mass.—The Fore River Shipbuilding Co. has the following new work in progress:—

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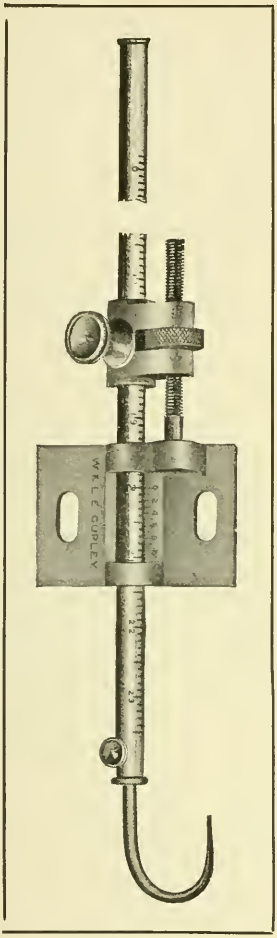

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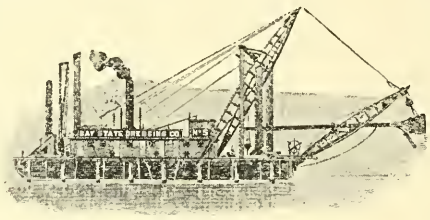

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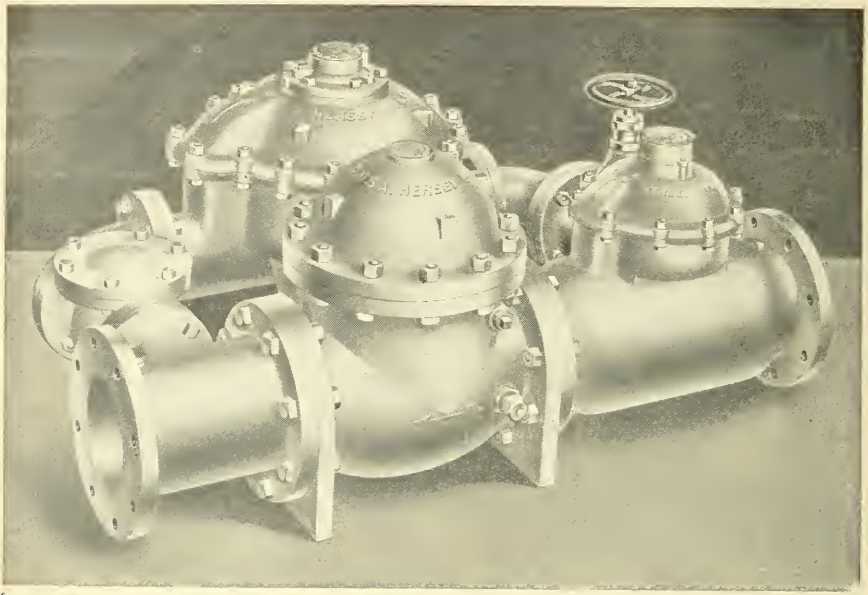

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BOSTON SOCIETY OF CIVIL ENGINEERS
ORGANIZED JULY 3, 1848

MONTHLY BULLETIN.

NEW SERIES. DECEMBER, 1913 No. 77

REGULAR MEETING

A regular meeting of the Boston Society of Civil Engineers will be held on Wednesday, December 17, 1913, at 7.45 o'clock P. M., in

CHIPMAN HALL, TREMONT TEMPLE, BOSTON

Business of the Meeting:—To consider the resolution in relation to the flood control of the Mississippi River, postponed from the last meeting. (The resolution recommended by a Committee of the Society and the bill therein referred to are printed in this *Bulletin.*

The Committee on Publication propose the following amendment to the By-Laws:—Amend By-Law 8 by adding after the second paragraph the words, "Three dollars of the dues of each member, or such portion thereof as may be required, shall annually be applied to the payment of a subscription to the Journal of the Boston Society of Civil Engineers."

Mr. James W. Rollins will give an account of the Construction and Repairs of the Brightman Street Bridge at Fall River, Mass. The stereopticon will be used.

Mr. G. H. Perkins, Superintendent of Refinery of Warren Bros. Co. of Boston, will give a lecture, illustrated by lantern slides and motion pictures, and entitled "Bitulithic Pavement and Warrenite Roadway."

S. E. TINKHAM, *Secretary.*

JOINT MEETING OF BOSTON ENGINEERS

Thursday Evening, December 18, 1913

A joint meeting of the American Society of Mechanical Engineers, the Boston Society of Civil Engineers and the Boston Section, American Institute of Electrical Engineers, under the direction of the latter society, will be held Thursday evening, December 18, 1913, at eight o'clock, in the auditorium of the Engineers' Club, 2 Commonwealth Avenue, Boston.

Mr. B. A. Behrend will address the meeting on the subject "A Great Engineering Disaster and the Lessons Learned Therefrom." The paper will be illustrated by lantern slides.

A special table d'hote dinner will be served at the Engineers' Club preceding the meeting, for club members and their guests. Those desiring this dinner should notify the club in advance. Price $1.00.

RESOLUTION IN RELATION TO THE FLOOD CONTROL OF THE MISSISSIPPI RIVER

The Committee appointed at the last meeting to consider the communication from the Mississippi River Levee Association, recommend the adoption of the following resolution:—

WHEREAS, the flood control of the Mississippi River is a problem demanding serious and immediate attention; and

WHEREAS, all such problems can best be handled by some central authority which, in addition to its own work, can direct and co-operate with the efforts of local interests, and

WHEREAS, owing to the great extent of territory affected, the United States Government is the only central authority available to handle this problem, and

WHEREAS, the improvement of the various rivers and harbors throughout the country can best be carried out by the cordial co-operation of the inhabitants of all sections, and

WHEREAS, we in Boston, vigorously promoting the development of this port and the commercial and industrial advancement of New England, realize that the proper control of the

Mississippi River is a matter which not only affects the welfare of the whole country, but will materially benefit the manufacturing and commercial interests of Boston and New England, therefore be it

RESOLVED, that the Boston Society of Civil Engineers, believing the levee system to be the most practicable method of regulating the Mississippi River floods, favors the passage of the measure now before Congress known as the Humphreys-Ransdell bill, entitled "A Bill To Prevent Floods on the Mississippi River and Improve Navigation Thereon."

A Bill To Prevent Floods on the Mississippi River and Improve Navigation Thereon.

WHEREAS, the Mississippi River is the nation's drainage ditch, and its flood waters, gathered from thirty-one states and the Dominion of Canada, constitute an overpowering force which breaks the levees and pours its torrents over many million acres of the richest land in the Union, stopping mills, impeding commerce, and causing great loss of life and property; and

WHEREAS, these floods are national in scope, and the disasters they produce seriously affect the general welfare; and

WHEREAS, the state, unaided, cannot cope with this giant problem; and

WHEREAS, the control of the Mississippi River is a national problem, and the preservation of the depth of its water for the purpose of navigation, the building of levees to maintain the integrity of its channel, and the prevention of the overflow of the land and its consequent devastation, resulting in the interruption of interstate commerce, the disorganization of the mail service, and the enormous loss of life and property impose an obligation which alone can be discharged by the general government; therefore,

BE IT ENACTED by the Senate and House of Representatives of the United States of America in Congress assembled, That for continuing the improvement of the Mississippi from the head of the passes to mouth of the Ohio River, including the salaries, clerical, office, traveling and miscellaneous expenses

of the Mississippi River Commission, with a view to securing a permanent channel depth of nine feet, preventing the banks of the river from caving, and protecting the valley from floods, the sum of $12,000,000 is hereby appropriated, to be paid out of any money in the treasury not otherwise appropriated, and to be immediately available, which shall be expended under the direction of the secretary of war in accordance with the plans, specifications and recommendations of the Mississippi River Commission, as approved by the chief of engineers, for the general improvement of the river, and for surveys, including the survey from the head of the passes to the headwaters of the river, in such manner as, in their opinion, shall best improve navigation and promote the interests of commerce at all stages of the river, and for the building of levees between the head of the passes and Cape Girardeau, Mo.; provided, that on and after the passage of this act the secretary of war may, by hired labor or otherwise, carry on continuously the plans of the Mississippi River Commission as aforesaid, to be paid for as appropriations may from time to time be made by law, not to exceed in the aggregate $48,000,000, exclusive of the amounts herein and heretofore appropriated; provided, further, that the authorized sum last named shall be used in prosecuting the improvement for not less than four years beginning July 1, 1915, the work thus done each year to cost, approximately, $12,000,000. Provided, further, that of the money hereby appropriated and authorized to be expended the sum of $9,000,000 per annum, or so much thereof as may be necessary, shall be expended in the protection, repair and construction of levees; and the balance in the construction and repair of bank revetment, and for works in the interest of navigation, including the construction of suitable and necessary dredge boats and other devices and appliances, and in the maintenance and operation of the same.

SEC. 2. That the watercourses connected with the said river, and any harbors upon it now under control of the Mississippi River Commission and under improvement, may, in the discretion of said commission, upon the approval of the chief

of engineers, receive allotments for improvements now under way or hereafter to be undertaken, to be paid for from the amounts herein appropriated or authorized.

Sec. 3. That no money herein authorized to be appropriated shall be expended in any established levee district in the construction or repair of levees therein unless and until assurances have been given satisfactory to the commission that local interests protected thereby will contribute for such construction and repair a sum equal to one-third of such sum as may have been allotted by the commission for such work; provided, that such contributions shall be expended under the direction of the commission and in such manner as it may require or approve, but no contributions made by any state or levee district shall be expended in any other state or levee district except with the approval of the authorities of the state or district so contributing.

JOURNAL OF THE BOSTON SOCIETY OF CIVIL ENGINEERS

With this number the publication by the Society of the Monthly Bulletin will be discontinued. The first number of this Bulletin was issued in May, 1906, taking the place of the simple monthly notice which had previously been sent out. A total of 77 numbers of the Bulletin has been issued.

At the June meeting of the Society the canvass of a letter ballot showed that the following vote had been adopted: That the Boston Society of Civil Engineers withdraw from the Association of Engineering Societies at the end of the present calendar year, and that thereafter the papers presented to the Society be published in an independent journal.

The Committee on Publication of the Society, who, under the By-Laws, "have charge of the publication of all papers and transactions of the Society," have made arrangements for carrying out this vote, and will issue early in January, 1914, the first number of the Journal of the Boston Society of Civil Engineers, which will contain the information

relating to the affairs of the Society heretofore printed in the Monthly Bulletin, together with the transactions of the Society formerly published in the Journal of the Association of Engineering Societies.

The plan which the Committee has adopted provides for a monthly journal of ten issues per year and an annual volume containing only the papers, with discussions, memoirs and other matter of permanent value, which have appeared from month to month in the Journal.

This journal will mean simply the enlarging of our present Bulletin, so as to print in each issue such of the papers to be read before the Society as are in shape for publication at the date of making up the journal. The aim should be to issue the paper in the journal in time to give members an opportunity to prepare any discussion they may have to offer, so that when the paper is read, these discussions may be presented. If it is not possible to put the paper in type in advance of the presentation, it may be printed in the earliest number of the journal for which it can be gotten ready.

The annual volume, to contain only the papers read before the Society with such discussions as may be prepared, the memoirs, and other matter deemed of sufficient value to be inserted in that volume, is the only feature in the proposed plan which differs from that adopted by the various local societies printing their own transactions. If the Society can afford to pay for the second printing of its papers, there is no doubt of the satisfaction it will give its members to have the papers and discussions gathered into a single volume and sent them at the close of the year.

For the first year, however, it is proposed to print the matter which would go into the annual volume in such a form that it can be detached and bound separately, should the cost of reprinting the papers be greater than the funds of the Society will warrant.

If the members of our Society will take as deep an interest in our journal, and accord to it the same enthusiastic support as did the members of the societies located at Chi-

cago and Cleveland, when they withdrew from the Association and established independent publications, the Committee have no doubt of the success of this undertaking.

The journal will be published by the Society under the direction of the Committee on Publication, who have selected as its editor, with the approval of the Board of Government, Mr. Edward C. Sherman, a member of the Society.

APPLICATIONS FOR MEMBERSHIP

[December 10, 1913]

The By-Laws provide that the Board of Government shall consider applications for membership with reference to the eligibility of each candidate for admission and shall determine the proper grade of membership to which he is entitled.

The Board must depend largely upon the members of the Society for the information which will enable it to arrive at a just conclusion. Every member is therefore urged to communicate promptly any facts in relation to the personal character or professional reputation and experience of the candidates, which will assist the Board in its consideration. Communications relating to applicants are considered by the Board as strictly confidential.

The fact that applicants give the names of certain members as reference, does not necessarily mean that such members endorse the candidate.

The Board of Government will not consider applications until the expiration of twenty (20) days from the date given.

DATE, MORESHWAR JUGUNNATH, Bombay, India. (Age 36, b. Kishangarh, India.) Educated at Bombay and Madras Universities, 1891-95, and at Thomas Civil Engineering College; holds I. C. S. diploma in Railroad Engineering. From 1898 to 1899, apprentice to Chief Engineers South Indian Railway; 1900 to 1905, supervisor on works, South Indian Railway Construction Works; 1905 to 1906, on surveys and reconstruction of Bombay Electric Tramways, including drainage work, etc.; 1907 to 1908, Asst. Engineer on construction of Delhi Electric Tramways; 1908 to 1911, Chief Engineer with Tejoo Kaya & Co., Bombay Port Trust Contractors; 1911 to 1913, Construction Engineer with

Tata Hydro-Electric Power Supply Co.; at present Agent and Engineer to Contractors for Tausa Dam Works, Bombay Municipality. Is member of the Royal Society of Arts, London. Recommended by S. E. Tinkham, W. S. Johnson and C. W. Sherman.

MINUTES OF MEETINGS

NOVEMBER MEETING OF THE SOCIETY

BOSTON, November 19, 1913.—A regular meeting of the Boston Society of Civil Engineers was held this evening in Chipman Hall, Tremont Temple, and was called to order by the President, Frederic H. Fay, at 7.50 o'clock.

By vote the reading of the record of the last meeting was dispensed with and it was approved as printed in the November *Bulletin*.

The Secretary reported for the Board of Government that it had elected the following to membership in the grades named:

Members:—Kenneth P. Armstrong, Hugh Nawn, Leo Bayles Reilly and Sheldon Smith Yates.

Junior:—Lawrence Brackett Hoyt.

Memoirs of deceased members were presented as follows: That to George A. Nelson, prepared by a Committee consisting of Richard A. Hale and George Bowers; and that to Edward A. Haskell, prepared by a Committee consisting of Luis G. Morphy and John B. Russell. They were received and ordered to be printed in the Journal of the Association of Engineering Societies.

The Secretary read a communication from the American Road Builders' Association extending a cordial invitation to the Society to be represented by three or more delegates at its Tenth Annual Convention, to be held in Philadelphia, December 9 to 12, 1913. By vote the President was authorized to appoint such delegates, if he could find members available for the purpose. He has appointed the following to serve as delegates: Messrs. John R. Rablin, Arthur W. Dean, and Charles W. Ross.

The consideration of the resolution in relation to the Flood Control of the Mississippi River, presented by the Committee

of the Society appointed at the last meeting, was then taken up. (The resolution was printed in the November *Bulletin.*) After a short discussion it was voted to postpone further consideration of the resolution until the next meeting.

The meeting then took the form of a joint meeting in which the American Society of Mechanical Engineers and the Boston Section of the American Institute of Electrical Engineers took part. The attendance was 180.

President Fay, after extending a welcome to the members of the other engineering societies present, introduced Mr. John W. Alvord, Hydraulic Engineer, of Chicago, who gave a most interesting talk entitled "Engineering Lessons from the Ohio Floods." The talk was fully illustrated by lantern slides. A discussion followed Mr. Alvord's talk, in which Messrs. Desmond FitzGerald, Frank A. Barbour and others took part. The Secretary presented a short written discussion prepared by Mr. Francis C. Tucker of Chicago, a member of the Society.

After extending to Mr. Alvord by a unanimous rising vote the thanks of the Society for his very interesting and instructive paper, the Society adjourned.

S. E. Tinkham, *Secretary.*

DECEMBER MEETING OF SANITARY SECTION

Boston, Mass., December 3, 1913.—The regular December meeting of the Sanitary Section of the Boston Society of Civil Engineers was held this evening at the Engineers' Club, corner of Commonwealth Avenue and Arlington Street. Dinner was served at 6 o'clock P. M., in one of the Club dining rooms. There were 34 members and friends present. Chairman Edmund M. Blake introduced a novel feature in calling upon several gentlemen for impromptu speeches, much to the enjoyment of all.

The business meeting was called to order at 7.45 o'clock P. M., in the assembly hall by Chairman Edmund M. Blake. As there were no objections offered, the minutes of the two previous meetings were declared approved as printed in the *Bulletin.*

Upon motion of the Clerk it was voted:—"That the Chairman be authorized to appoint a committee of three to report at the annual meeting in March on the advisability of continuing the collection and tabulation of Sewerage Statistics by the Section, and the form of blank to be recommended. The Committee shall be called the Committee on Sewerage Statistics."

The Chairman then introduced Dr. George A. Soper, president of the Metropolitan Sewerage Commission of New York, who read a most interesting and instructive paper on "The Main Drainage Works Proposed for New York." Dr. Soper discussed the principal problems which have been studied by the Commission, and outlined the experiments and conclusions which led to the Commission's recommendations. He further showed, by the aid of lantern slides, the plans proposed for collecting and conveying the sewage of Greater New York by means of intercepters to certain central points for disposal. Special interest was centered in the "Island Outlet" scheme proposed for the relief of the pollution of the Lower East River.

At the close of Dr. Soper's remarks, Mr. Desmond Fitzgerald spoke in appreciation of the work done by the Commission and especially of the valuable data secured through the tests for dissolved oxygen which have been made extensively in the waters of the harbor.

Dr. Wm. T. Sedgewick also spoke at some length of the valuable work which he considered the Commission had accomplished by the thoroughness of their studies.

The meeting adjourned at 10 o'clock. There were 75 members and guests present.

FRANK A. MARSTON, *Clerk.*

EMPLOYMENT BUREAU

The Board of Government has established an employment bureau for the Society to be a medium for securing positions for its members and applicants for membership, and also for furnishing employees to members and others desiring men capable of filling responsible positions.

At the Society rooms two lists are kept on file, one of *positions available* and the other of *men available*, giving in each case detailed information in relation thereto.

Men Available

183. Age 25. Graduate of Massachusetts Inst. of Technology, 1913. During summer of 1912, was with Directors of Port of Boston as rodman; August to November, 1913, with New England Concrete Construction Co. as timekeeper. Salary desired, $15 per week.

191. Age 18. High school graduate, and passed entrance examinations for Massachusetts Inst. of Technology. Has had two summers' experience with J. W. Bishop Co., the first in office, doing drawing, tracing, etc., the second as timekeeper; with W. A. Mason & Son, Cambridgeport, Mass., for one and one-half years as general assistant; with O. H. Tripp, Rockland, Me., for two months as general assistant. Desires position as transitman. Salary desired, $12 per week.

203. Age 30. 1901 to 1905, minor-under-instruction, U. S. Navy Yard, Boston, Mass.; 1905 to 1906, structural draftsman, Boston Navy Yard; 1906 to 1909, topographical draftsman with Board of Water Supply, New York City; 1909 to date, Assistant Engineer, New York Board of Water Supply. Present salary, $2,000 per year.

204. Age 27. Educated in public schools and at Harvard University. Has had five years' experience in enginering work, including work as transitman and foreman on construction of sewers, drains, sewage disposal plants, and small concrete foundations; also as inspector on bridge piers and concrete foreman on viaduct work. Desires position as construction foreman, engineer or superintendent, or as assistant to efficiency engineer. Salary desired, $25 per week.

205. Age 24. Has had seven summers' experience in field and office work, including inspection of city paving, general land surveying, town site surveys, and work in city water de-

partment; is expert levelman and transitman. Is now Junior Topographer with U. S. Geological Survey, on furlough for the winter. Desires position in charge of field party on topographic or municipal work. Salary desired, at least $100 per month.

206. Age 41. Special student at Mass. Inst. of Technology, Class of 1893, and graduate of Harvard College in 1896. For past ten years has been engaged as engineer on railway location and construction in Canada. Desires either permanent position or position for winter.

LIST OF MEMBERS

ADDITIONS

HOYT, LAURENCE B. .....168 E. Emerson St., Melrose, Mass.
MOORE, CHESTER A. .....33 Gardner St., Chelsea, Mass.
WELLS, FRANCIS S. .....25 Fairview Terrace, Malden, Mass.
YATES, SHELDON S. .....Pierce Hall, Cambridge, Mass.

CHANGES OF ADDRESS

ARMSTRONG, KENNETH P. .....112 Sycamore St., Winter Hill, Mass.
DODGE, SAMUEL D. .....Board of Water Supply, Municipal Bldg., New York, N. Y.
FLINN, ALFRED D. .....Municipal Bldg., 22nd Floor, New York, N. Y.
MILNE, ALEXANDER P. .....811 Spalding Bldg., Portland, Oregon
PERKINS, THEODORE P. .....202 North Station, Boston, Mass.
RIPLEY, HERBERT L. .....Room 440, South Station, Boston, Mass.
ROBBINS, FRANKLIN H. ..Municipal Bldg., 22nd Floor, New York, N. Y.
ROURKE, JOSEPH A. .....60 City Hall, Boston, Mass.
SMITH, CHESTER W. .....2 Wall St., New York, N. Y.
SMITH, J. WALDO .....Municipal Bldg., 22nd Floor, New York, N. Y.
WARREN, GEORGE M. .....316 Federal Bldg., Richmond, Va.
WIGGIN, THOMAS H. ....Municipal Bldg., 22nd Floor, New York, N. Y.

LIBRARY NOTES

RECENT ADDITIONS TO THE LIBRARY

U. S. Government Reports

Annual Report of Isthmian Canal Commission for 1913. 2 vols., including maps and diagrams.

Approximate Melting Points of Some Commercial Copper Alloys. H. W. Gillett and A. B. Norton.

Borate Deposits in Ventura Co., Cal. Hoyt S. Gale.

Causes of Decline of Oil Wells. L. G. Huntley.

Clay-Working Industries in U. S. in 1912. Jefferson Middleton.

Fort Smith-Poteau Gas Field, Arkansas-Oklahoma, and Glenn Oil and Gas Pool and Vicinity, Oklahoma. Carl D. Smith.

Fuller's Earth. Charles L. Parsons.

Mine-Accident Prevention at Lake Superior Iron Mines. Dwight E. Woodbridge.

Oil and Gas in Northern Part of Cadiz Quadrangle, Ohio, by D. Dale Condit; and Gas from Mud Lumps at Mouths of Mississippi, by E. W. Shaw.

Precious and Semi-precious Metals in Arizona in 1912. V. C. Heikes.

Precious and Semi-precious Metals in New Mexico and Texas in 1912. Charles W. Henderson.

Precious and Semi-precious Metals in Utah in 1912. V. C. Heikes.

Production of Coal in 1912. Edward W. Parker.

Production of Mineral Waters in 1912. George Charlton Matson.

Production of Petroleum in 1912. David T. Day.

Production of Platinum and Allied Metals in 1912. David T. Day.

Safety in Tunneling. David W. Brunton and John A. Davis.

Triangulation along West Coast of Florida. Clarence H. Swick.

Water-Supply Papers 315, 320, and 334.

Wood Paving in United States. C. L. Hill.

State Reports

Florida. Wood-Using Industries of Florida. Hu Maxwell.

Iowa. Wood-Using Industries of Iowa. Hu Maxwell and others.

Massachusetts. Address to State Inspectors of Health. Hiram F. Mills. Gift of Desmond FitzGerald.

Minnesota. Wood-Using Industries, by Hu Maxwell and John T. Harris; and Timber Resources, by William T. Cox.

New Jersey. Mechanical and Chemical Composition of Soils of Sussex Area. A. W. Blair and Henry Jenning.

New Jersey. Mineral Industry for 1912. M. W. Twitchell.

City and Town Reports

Chicago, Ill. Report of Bureau of Public Efficiency on Office of Treasurer of Cook County, Ill.

Detroit, Mich. Annual Report of Water Commissioners for 1912-13.

Louisville, Ky. Final Report of Commissioners of Sewerage, 1910-13.

Minneapolis, Minn. Annual Report of Registrar of Water Works for 1912.

Miscellaneous

American Rolling Mill Co. Blue Book of American Ingot Iron. Public Opinion on American Ingot Iron. Culverts.

American Society of Civil Engineers. Transactions for 1913.

C. L. Berger & Sons. Standard Instruments of Precision.

Berlin Mills Co. Structural Wood and Its Preservation from Decay.

Central Foundry Co. Universal Cast Iron Pipe. Soil Pipe and Fittings.

Ceresit Waterproofing Co. Book of Evidence.

Chicago Bridge & Iron Works. Water Towers.

Electro Bleaching Gas Co. Liquid Chlorine for Sterilizing Water and Sewage. Use of Liquid Chlorine for Sterilizing Water. John H. Kienle.

Hanna Mfg. Co. Catalogue of Engineering Instruments.

Indian Storage Reservoirs with Earthen Dams. William Lumisden Strange. Gift of Desmond FitzGerald.

Lackawanna Steel Co. Abbott Rail Joint Plate. Light Rails and Appurtenances. Standard Sections of Steel Rails and

Splice Bars. Steel Sheet Piling. Raising the Wreck of the Battleship Maine.

Lock Joint Pipe Co. Continuous Reinforced Concrete Pipe.

Mass. Inst. of Technology. Catalogue, 1913.

Milburn Light Co. Portable Acetylene Lights.

Ransome Concrete Machinery Co. Catalogue.

Relation of Manufacturer to our Patent System. W. M. Grosvenor.

Taylor Instrument Companies. Catalogues of H. & M. Thermometers.

Trussed Concrete Steel Co. Hand Books of Kahn Building Products. 2 vols.

U. S. Wood Preserving Co. "The Silent Pavement" in New York.

The Connecticut Society of Civil Engineers have kindly aided us in completing our file of their Proceedings, to the extent of presenting us with some fourteen numbers. Through their kindness and the assistance of members, our file is now complete from 1885 to 1913, with the exception of Proceedings for the following years: 1889, 1906, 1908, 1910 and 1912. Can any of our members supply us with these numbers? Dates quoted for these numbers of the Proceedings are those appearing on the covers of the same.

At the suggestion of several of our members, we are starting a section of trade publications, or, rather, reviving a section of this nature, which has not been kept up. If any member has in mind some particular concern whose publications he would like to have added to the library, will he kindly mention the fact to the Assistant Librarian, or make a note of it in the "Suggestion Book"?

Members who use the library can often make valuable suggestions in regard to analytical cards for the card catalogue. An analytical subject catalogue, that is, a catalogue not merely of books and the general subjects treated by them, but of spe-

cial phases treated under those subjects, a catalogue of chapters or even parts of chapters in books, and of articles in reports, magazines, and transactions of societies, you will no doubt agree would be of immense value.

A member came in one day and spent some time in searching for valuable information, which could be found only by looking through quite a number of volumes. Some weeks later he came in again and wanted to use the same information, but had quite forgotten where he found it, and the previous research work had to be done all over again. The Assistant Librarian suggested that an analytical card on that subject would save him from having the same trouble again, and he has since handed her occasionally a slip on which he has noted the subject he has been looking up, together with the title of the book and the page on which he found the desired information. The next time he wants it, he will find it by consulting the card catalogue. So will some one else who happens to want it.

With a library force of one, who has secretarial as well as library duties, the amount of research work necessary to an exhaustive analytical catalogue is impossible in the near future. A certain amount of work of this kind is being done, but, while it is bound to meet the needs of some one, whatever the point of attack, the work cannot be attacked at all points at once, and it may not meet your individual needs for some time to come. Why not cultivate, in moderation, the habit of the member mentioned above?

LIBRARY COMMITTEE.

NEW ENGINEERING WORK

(Under this head a brief description of new engineering work contemplated or under construction will be presented each month. Engineers and contractors are requested to send descriptions of their work to the Secretary, 715 Tremont Temple, Boston, before the first of each month.)

United States Government.—NAVY DEPARTMENT.—*Navy Yard, Boston.*—Work is now in progress or new work is contemplated as follows:—

A two million gallon fuel oil tank is to be constructed at the Navy Yard. Excavation is in progress and concrete is being placed for the foundations. Contract has been awarded for the steel work. Plans for pipe lines are in progress.

Rock crushing plant has been erected for the purpose of utilizing old granite from abandoned sea walls and paving, for the manufacture of crushed stone for use in concrete and railroad ballast.

Commonwealth of Massachusetts.—METROPOLITAN PARK COMMISSION.—*Charles River Reservation.* Work of construction of Anderson Bridge is in progress and practically completed, except the surfacing of the roadways and walks.

Woburn Parkway.—Work of construction of parkway on the westerly side of Horn Pond is in progress.

METROPOLITAN WATER AND SEWERAGE BOARD.—*Sewerage Works.*—Work on Sections 68 and 70, new Mystic Sewer, at Winchester, is in progress. Section 69 is soon to be let.

Directors of the Port of Boston.—COMMONWEALTH PIER No. 5.—The work of reconstructing and equipping the Commonwealth Pier continues as reported last month.

Commonwealth Pier No. 6.—Paving on the pier proper is practically completed to the inner end of the Fish Store Buildings, and that on Northern Av. is also completed. The work on the buildings proper is being pushed by the Boston Fish Market Corporation.

Heating Plant.—The work of constructing the foundations for the heating plant continues.

Viaduct.—The work of constructing the foundations for the viaduct from Commonwealth Pier No. 5 to Summer Street is well under way.

Eastern Railroad Pier, (to be known as Commonwealth Pier No. 1, East Boston).—Bids have been requested for the removal of existing buildings and pile structures on this pier. Plans and specifications are under way for the reconstruction of the pier to be used as a steamship terminal and for dredging the dock to 40 ft. at mean low water.

Dry Dock.—Plans for the construction of the dry dock are in progress and the construction of the timber bulkhead around the side of the dock has commenced.

Boston Transit Commission.—The Boylston-street Subway extends from Kenmore street, near the intersection of Commonwealth avenue and Beacon street, to the southwest corner of the Common near Park square, a distance of about 8000 feet, and is about 90% completed.

The uncompleted portions of the work (excepting the interior finish of the two stations not yet ready for contract) are a part of the station at Massachusetts avenue, a part of the station at Copley square consisting mainly of the lobby under Dartmouth street, and the greater part of Section 5, which extends from Arlington street to and connects with the Tremont-street Subway near Park square. Work is in progress in all of these places.

The contractor for the above mentioned work is the Hugh Nawn Contracting Company.

Section B of the Dorchester Tunnel includes the proposed station in Summer street, which will extend from near Washington street east to Arch street. The work of underpinning the buildings on Summer street along the line of the work is practically completed. Concrete sidewalls and steel columns and roof beams with concrete in roof are being placed. The new cast iron sewers are mostly in place. The contractor is the Hugh Nawn Contracting Company.

Section C of the Dorchester Tunnel is located in Summer street and extends from near Arch street to Dewey square, a distance of about 1,018 linear feet. About two-thirds of its

length is to be built by tunnelling. The structure is to be mainly of reinforced concrete.

Section G of the East Boston Tunnel Extension extends in Court street from the easterly side of Cornhill westerly to Stoddard street. The structural work from near Brattle street to Stoddard street is nearly completed. The construction of a part of the station under and near the present Scollay square station is in progress. Isaac Blair & Company, Inc., is the contractor.

On Section J, which extends from Staniford street to North Russell street, the incline in Cambridge street between Chambers and North Russell streets has been built. The walls of the tunnel between Lynde and Chambers streets are partly built and excavation is proceeding betwen Staniford and Chambers streets. The building 161-171 Cambridge street has been torn down and the street widened for the approach to the westerly end of the incline. Coleman Bros. are the contractors.

City of Boston.—Public Works Department, Highway Division, Paving Service.—Work is in progress on the following streets:—Summer Street, from B Street to Viaduct to Pier No. 5, retaining wall; Armington Street, from Webster Avenue to Brighton Avenue, tar macadam; Islington Street, from Webster Avenue to Brighton Avenue, tar macadam; Cliftondale mandy Street, from Intervale Street to Creston Street, tar macadam; Sheffield Road, from Walter Street to Selwyn Street, tar macadam; Park Street, from March Avenue to Centre Street, artificial stone walk; Walworth Street, from Belgrade Avenue to Brooks Street, tar macadam; Spring Street, from Webster Avenue to Charles River, asphalt macadam; Popes Hill Street, from Neponset Avenue to Freeport Street, artificial stone sidewalks; Crossman Street, from Norfolk Street to West Seldon Street, tar macadam; Roach Street, from Dorchester Avenue to Pleasant Street, tar macadam; Norfolk Street, from Washington Street to the R. R. Bridge, bitulithic; Lawndale Terrace, from Lamartine Street to Amory Street, tar macadam; Normandy Street, from Intervale Street to Creston Street, macadam; Audubon Road, from Ivy Street to Mountfort Street, asphalt macadam; Pleasant Street, from Eliot Street to Washing-

ton Street, wood block; and Warren Avenue, from Berkeley Street to Columbus Square, wood block.

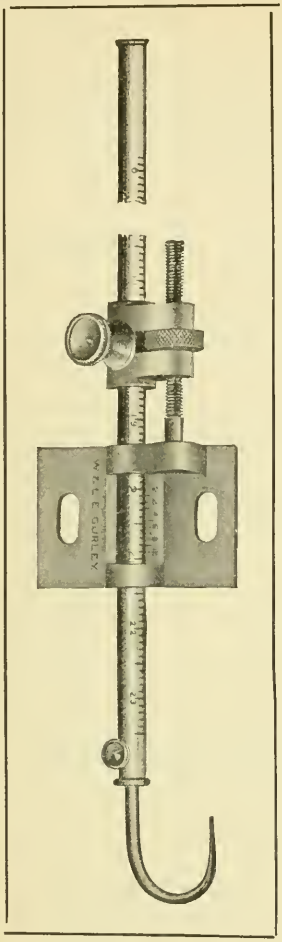
Sewer and Water Division.—*Sewer Service.*—The work is substantially as reported last month. A new form of gravity concrete mixer is now in use on Berkeley Street, near Columbus Avenue, which is well adapted for concrete sewer construction.

Bridge and Ferry Division.—*Pleasant St. Bridge.*—The work of widening this bridge has been completed with the exception of the roadway pavement of wood blocks, which will be laid at once.

Chelsea Bridge, South.—A temporary bridge over the south channel of Mystic River is being built to provide for travel during the reconstruction of the old bridge, which is in bad condition and must be rebuilt in the near future. The pile approaches are nearly finished, the street car tracks are in place at the southerly end, and the brick pavement will be laid at once. The draw centre pier is nearly ready to receive the steel work and it is expected that the steel girders at the northerly end will be in place by the middle of the month.

New York, New Haven & Hartford Railroad.—Clinton, Mass. Elimination of Grade Crossings. Work on the Boston and Maine Railroad now in progress is the building of a Passenger station, the cutting down of the former grade of the roadbed and the building of the tracks for the temporary main line in its depressed location. Masonry work on the Sterling Street foot subway is held up pending the removal of traffic to the temporary low level tracks.

Work on the New Haven Railroad is the laying of the permanent track on the new high level which it is proposed to place in service about the first of December. The change of the New Haven trains to this new high level location will eliminate the present crossing at grade of the two Railroads and will also allow the Contractor to proceed to finish all the masonry structures which the position of the temporary low level tracks prevented from being built complete. The Railroad will also proceed to widen the embankment to the finished width and the new transfer yard between the two railroads will be graded and put in service as soon as possible.



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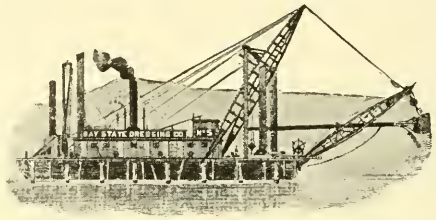

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HEARING IN RELATION TO SALE OF SHEETS OF STATE MAP.

The hearing on House Bill No. 225 in relation to the sale of the atlas sheets of the Map of the State of Massachusetts, will be held before the Committee on Harbor and Land at the State House, Boston, on Tuesday, March 5, 1912, at 11 o'clock, A. M.

This is the matter on which action was taken by the Society at its last meeting. See minutes of that meeting printed in the February Bulletin.

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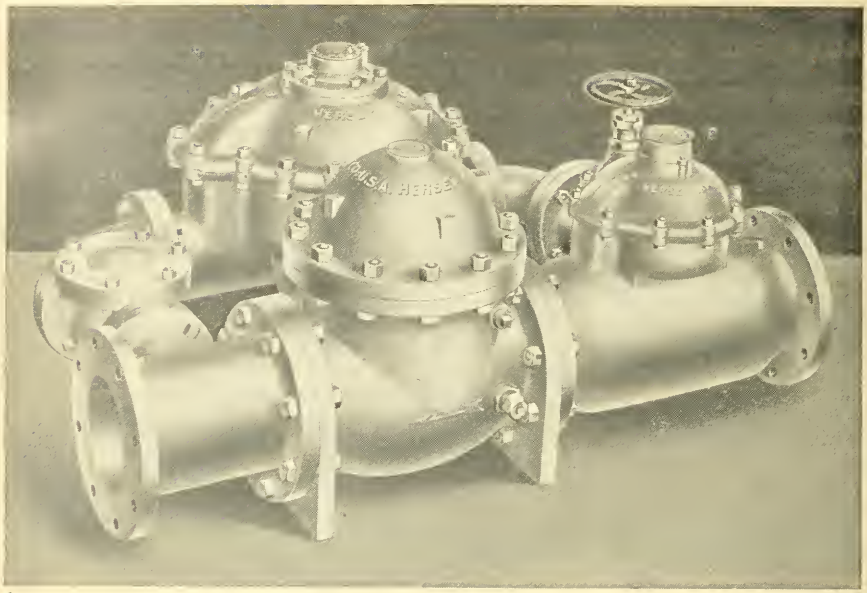

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